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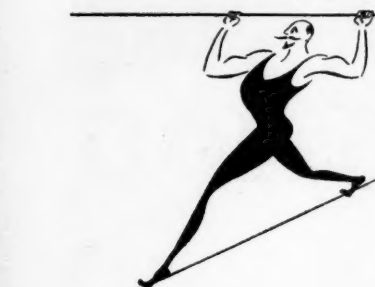
VOL. II.—42ND YEAR

SYDNEY, SATURDAY, JULY 9, 1955

No. 2



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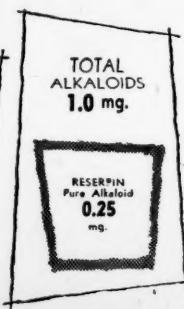
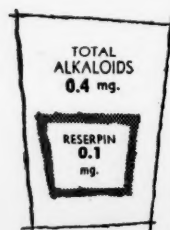


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# THE MEDICAL JOURNAL OF AUSTRALIA

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### The Charles Mackay Lecture.<sup>1</sup>

MEDICAL PRACTICE IN EARLY SYDNEY: WITH SPECIAL REFERENCE TO THE WORK AND INFLUENCE OF JOHN WHITE, WILLIAM REDFERN AND WILLIAM BLAND.

By EDWARD FORD,

Dean of the Faculty of Medicine, Professor of Preventive Medicine, and Director of the School of Public Health and Tropical Medicine, the University of Sydney.

This lecture is dedicated to the memory of Charles Mackay, a learned Victorian pioneer, who came to Australia from his native Scotland over a century ago.

Charles Mackay, a schoolmaster from Sutherlandshire, arrived in Melbourne in 1852. His long voyage to Australia was disastrous, for the crowded ship, the *Ticonderoga*, suffered a severe epidemic of typhus or "ship fever" on the way. Every person aboard, excepting the captain, was said to have been infected, and 178 deaths occurred among the vessel's crew and 824 passengers. During this time of

stress and fear, Mackay gave valuable and unselfish service to his fellow travellers.

Mackay settled in the Victorian township of Kilmore, where he made his home, taught school, and raised his family. He died in 1863, at the age of fifty-seven years. He was respected as a man of upright and independent character and of public spirit.

The Mackay Lecture was endowed in 1933 by Miss Catherine MacKenzie, a granddaughter of Charles Mackay, and sister of the late Sir Colin MacKenzie.

In this lecture it is proposed to recall some features of the early development of medical practice in Australia, more especially in relation to the service of three notable doctors—John White, William Redfern and William Bland. With their colleagues, they implanted their profession in the new colony, and practised their craft with distinction in the pattern of their British homeland.

#### The Voyage of the First Fleet.

On May 12, 1787, the First Fleet of 11 ships sailed from Spithead to establish a penal settlement at Botany Bay. This was to receive the unfortunates who, but for the recent revolt of the American colonies, would have been sent there to slave in the plantations.

The want and misery of the Industrial Revolution bred crime and revolt, and harsh laws ensured a plentiful crop of convicted felons. Consequently the prisons throughout Britain, unrelieved by transportation, were crowded with

<sup>1</sup> Delivered on April 20, 1954, at the Australian Institute of Anatomy, Canberra.

miserable prisoners. Though John Howard was bravely engaged in his reforms, his labours were not yet completed, and the gaols were places of degradation and disease.

These were hard days for the great majority, who lived in indescribable squalor in the overcrowded cities. They were exploited and repressed by the *laissez-faire* system of the time; starvation was always near; the sweep of the great pestilences was yet unchecked; the concept of the public health was yet to arise; and public assistance was meagre. The spirit responsible for the reforms of the next century was astir, though years were to pass before these were achieved.

The fleet carried 756 convicts of both sexes and 258 soldiers and marines. It was commanded by Captain Arthur Phillip, a wise and humane man and an able administrator. He was to be the first Governor of the new colony, and was surely one of the best men ever to set foot in it. Nine doctors sailed with the fleet, all surgeons of the Royal Navy. They were under the direction of John White, the Surgeon-General, who, like Phillip, had been especially chosen for his difficult post.

Though Phillip prepared carefully, the eight months' voyage to the new land was one of hardship, for under the best conditions of the time, sea travel was hazardous and trying. For the wretched convicts, carried under conditions comparable with those of the still existing slave trade, it was especially severe. They were dragged from insanitary, fever-ridden prisons and brought, dirty and ill-nourished, to the ships. It was all in the pattern of the times.

Once aboard, the convicts were herded, often chained, in damp, unlighted, ill-ventilated quarters below decks, which primitive sanitation made foul and evil-smelling. Much of the misery of such conditions was not confined to convict vessels, however, but was common to life at sea, and existed even in ships of the Royal Navy. Nine years later, in 1797, this culminated in the mutinies of Spithead and the Nore, which led to a betterment of conditions in the King's ships.

The discomfort and danger of long voyages, at this time, were multiplied by the inadequacy of the food supplied. It contained no fresh meat or vegetables, and was often disgusting and inedible from poor storage or the tricks of rascally contractors. Poor or rotten salt meat, and weevily biscuits, were common fare. With such a diet, seafarers were in no state to withstand the infections which bred in their crowded quarters, or the scurvy, which caused great mortality and suffering. The prevention and cure of scurvy by the use of fresh oranges and lemons had been indicated some thirty-five years earlier by James Lind, a naval surgeon, but his advice was not implemented till the end of the century. White was consequently provided with ineffective scurvy remedies, including malt essence, *Sauerkraut*, vinegar, spruce beer and acids.

To build up his charges, the Surgeon-General arranged for fresh meat and vegetables to be issued for some weeks before the fleet sailed, and for the same reason the fleet put in for a month each at Rio and the Cape of Good Hope. In a study of the diet of the fleet and the early settlement, Davey, MacPherson and Clements (1947) showed that, while its calories were almost adequate, and its protein and vitamin B<sub>1</sub> contents sufficient, it contained no vitamin C at all, and was poor in vitamin A.

The voyage was a fortunate one, though scurvy and dysentery took a toll. Forty-eight deaths occurred at sea; this number stood out in happy contrast with the tragic results of many later voyages to Australia, which had not the advantage of such careful medical supervision (Phillip, 1789; Tench, 1789).

#### John White and the First Settlement.

The first Australian settlement was established at Port Jackson on January 26, 1788. Its first doctors were appointed from the surgeons of the fleet, of whom the Surgeon-General, John White, and five others were chosen to remain. The latter were Assistant Surgeons William Balmain, Thomas Arndell, Thomas Jamison and Dennis Considen, and a junior surgeon, John Irving. Within a

month Jamison was sent with Lieutenant Philip Gidley King (later Governor) to form a settlement at Norfolk Island. An account of the vicissitudes of the early surgeons is given by K. Macarthur Brown (1951), author of "Medical Practice in Old Parramatta" (1937).

The members of the new medical staff held commissions directly from the Crown and were classed as civil officers. The Surgeon-General—or Principal Surgeon, as he was now called—received an annual salary of £182 10s., or 10s. a day, his assistant surgeons half that amount, and the junior surgeon £50, all with added rations and accommodation.

The whole company landed in a weakened condition, and many sick persons were carried ashore. It was necessary to establish a hospital at once, so that while the work of clearing and landing stores went on, tents were pitched for the purpose on the western side of Sydney Cove, on a site now occupied by the police station at George Street North. As soon as the hospital tents were erected, they were quickly filled, as White wrote, "with patients afflicted with true camp dysentery and scurvy". "More pitiable objects", he said, "were perhaps never seen", for they lacked comforts and necessities. Their diet consisted of ordinary salt rations, and even blankets were in short supply.

As only sea rations were available, the scurvy raged with increased virulence, and many succumbed. Phillip was aware of the need for fresh vegetables, and gardens were planted, though at first with poor results. Game and fish were hard to catch, and the salted food was largely unsupplemented. The bush was constantly searched for edible plants and shrubs, but these were found only in small quantities. John White and his assistant surgeon, Dennis Considen, who were both naturalists, were particularly active in this work, which they combined with the collection of plants and animals for study by scientists at home.

The native sarsaparilla (*Smilax glycyphylla*), which was called sweet tea, was the most readily procurable useful plant. An infusion of the leaves was esteemed as a pleasant beverage, taking the place of tea, as well as for its antiscorbutic properties. The reputation it gained in White's day was maintained, and its use as a tonic and general remedy continued well into this century. The leaves of the cabbage tree, and wild parsley and spinach, were also gathered. The use of the last-mentioned also persisted till this century, and bundles were sold in the Sydney Markets as "Botany Bay greens". White also found that the berries of the native currant (*Leptomeria acida*) were valuable as an antiscorbutic, though they were procurable only in small quantities (MacPherson, 1928; Campbell, 1932). The berries of both *Smilax* and *Leptomeria* contain as much vitamin C as tomatoes; but a cupful a day is needed to prevent scurvy, and four cupfuls a day to cure it (Davey, MacPherson and Clements, 1947). Consequently White reported, eight months after his arrival, that, despite their search for native vegetables, "the disorder still prevails with violence, nor can we at present find any remedy . . .".

White and Considen also investigated the therapeutic properties of the gums and oils of native trees. The gum of the grass tree (*Xanthorrhoea*), which White called the yellow resin tree, was considered to be of value in chest complaints. He reported that the resin of the red gum was as astringent as the kino in common use, and effective in the same way against dysentery. From the leaves of the peppermint gum they distilled an essential oil, which appeared better than the English *Oleum Mentha Piperita* for the relief of "all cholicky complaints". White sent a quart of the eucalyptus oil to England. This was the first Australian natural product prepared for export, though it was not till 1853 that a factory for its production was established in Victoria.

In 1790, White's excellent work, "Journal of a Voyage to New South Wales", was published in London. The book contains one of the few first-hand accounts of the voyage and the first six months of the colony, together with descriptions and plates of plants and animals found about Port Jackson. Among the experts who described White's



specimens for the work was John Hunter, the great surgeon-naturalist, who dealt with the animals.

#### *The Second Fleet and Lean Years.*

In June, 1790, the Second Fleet arrived with much-needed supplies. But its advent was not otherwise fortunate, for it brought the soldiers of the New South Wales Corps, which was not to prove an honoured acquisition, and also landed nearly 500 sick convicts, in a state of pitiful neglect. This added sorely to the burden of the colony, and to the troubles of White and his staff.

This calamitous voyage lacked the preparation and able supervision which Phillip and White had given to the

bodies, clothes, blankets, all full of filth and lice. Scurvy was not the only or worst disease . . . some were exercised with violent fevers, and others with no less violent purging and flux . . . The usage they had met with on board—was truly shocking, sometimes for days, nay, for a considerable time altogether, they have been to the middle in water chained together, hand and leg, even the sick not exempted—nay, many died with the chains upon them . . . No wonder that they should be so afflicted; no wonder to hear them groaning and crying and making the most bitter lamentations . . .

When any of them were near dying, and had something given them as bread . . . or any other necessities, the person next to him or others would catch the bread, &c out of his hand, and, with an oath, say that he was

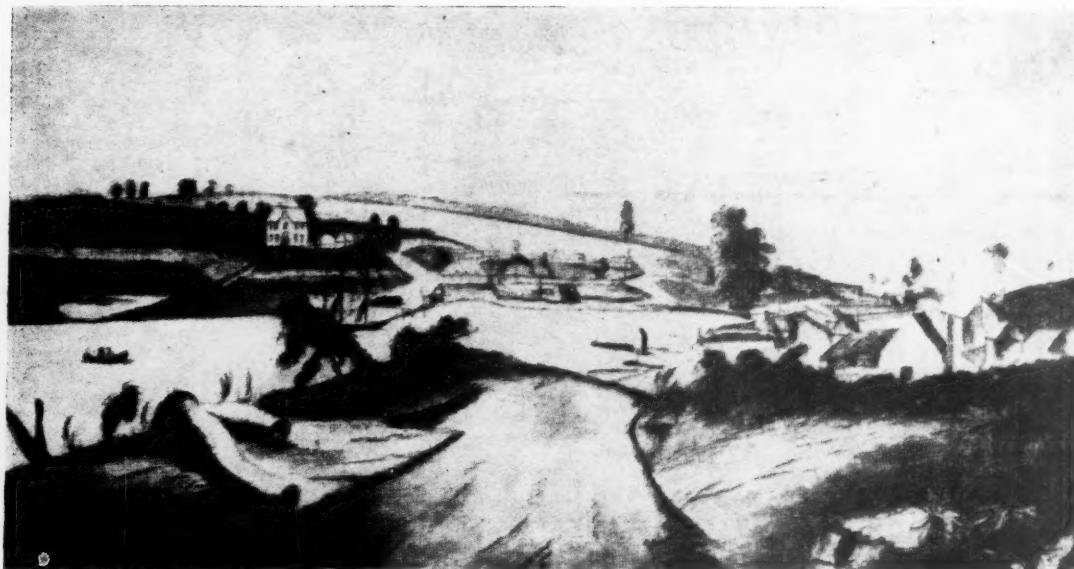


FIGURE 1.

Sydney Cove in 1794, by Thomas Watling. The hospital is shown in the right foreground, and lies on the western shore of Sydney Cove, at the present site of George Street North. Government House and the mouth of the Tank Stream are seen across the Cove. (From Dixon, 1923.)

earlier expedition. Of the 930 male convicts who embarked, 261 died on board, 50 more within two weeks of their arrival, and others subsequently. Scurvy was the main ailment, though dysentery, and probably typhus and typhoid, also occurred. Phillip reported that this "was occasioned by the contractors having crowded too many on board . . . and from their being too confined during the passage . . .". Their disembarkation is described in a letter by the Reverend R. Johnson (*Historical Records of Australia*, 1: 386), as follows:

The landing of these people was truly . . . shocking; great numbers were not able to walk, nor to move hand or foot; such were slung over the ship's side in the same manner as they would sling a cask, a box, or anything of that nature. Upon their being brought up to the open air some fainted, some died upon deck, and others on the boat before they reached the shore. When come on shore many were not able to walk, to stand, or to stir themselves in the least, hence some were led by others. Some crept upon their hands and knees, and some were carried upon the backs of others.

The already burdened hospital was overwhelmed by this influx. A portable hospital, brought by the fleet, was erected in the grounds, and about 100 tents were hastily pitched. Each of these received four men, who were laid on grass beds, with one blanket between the four. Mr. Johnson's letter further describes White's new patients:

The misery . . . is unexpressible; many were not able to turn, or even stir themselves, and . . . were covered over almost with their own nastiness, their heads,

going to die, and therefore it would be of no service to him. No sooner was the breath out of any of their bodies than others would watch them and strip them entirely naked . . . In the night-time, which at this time is very cold, and especially would this be felt in the tents, where they had nothing but grass to lay on and a blanket amongst four of them, he that was strongest of the four would take the whole blanket to himself and leave the rest quite naked . . .

The hospital had no proper nursing staff, and convicts detailed for the job gave rough and ready attention. Medical stores were still in short supply, food was scarce, and there were no amenities. John White carried on his work ably and conscientiously, but, like his overworked staff, cursed the new land.

They were joined at this time by John Harris, Surgeon to the New South Wales Corps, and D'Arcy Wentworth, later Principal Surgeon, who came as a self-arranged exile. Wentworth was at once sent to Norfolk Island, where he remained for six years before returning to Sydney. He was born in Northern Ireland, and went to London as a youth to study medicine. There he fell into bad company, and before qualifying became involved in serious difficulty with the law. It was said that he came to Australia to save worse trouble. He was affable and kind-hearted, and popular in the colony, though his medical knowledge was slight and his administration weak. He held high official positions and was later a friend of Governor Macquarie and one of Sydney's wealthiest citizens. D'Arcy Wentworth became the father of William Charles Wentworth, one of

the greatest Australians of his time, and founder of the University of Sydney (Melbourne, 1934).

To add to his cares of office, White had trouble with his staff, who showed the enmities that are only too likely to arise in isolation and close-living. He had difficulty with the able though intractable Balmain at the outset, and ill-feeling existed between them till White left the colony. An otherwise unrecorded incident in their relations is noted in the diary of a marine named John Esty, of the *Scarborough*, which is in the Dixon Collection. This occurs under the date August 12, 1788, when the King's birthday was celebrated:

"This day the Battalion marched from the Parade to the flagstaff and fired 3 volles. The officers all dined with the Governor. This night Mr. Wight, the Surgeon-Genl. and Mr. Balmain, the 2nd Assistant, fired their pistols at each other and slightly wounded each other."

This was probably the result of good dining with His Excellency, but indicates the depth of their bad feeling.

White's other assistant, Dennis Conisden, was also disgruntled, and wrote to Sir Joseph Banks, claiming that the work on the therapeutic properties of native flora, reported in White's book, was his own and not that of the author.

Though no detailed records are available of the medical work performed during White's term of office, it is clear that the medical staff was desperately engaged during the whole of this period. Apart from the severe inroads of dysentery and scurvy, the hard pioneering work, by weakened and unskilled men, was responsible for many accidents, and severe injuries were frequent. Wounds from aboriginal spears, snakebite, sunstroke, and difficulties of childbirth are noted among the conditions treated. In September, 1790, Governor Phillip himself required treatment for a spear wound, received during a visit to Manly Cove. This incident is described in the diary of a sergeant of marines (Dixon, 1923):

"His Excellency the Governor was wounded Desperately by a Native throughing a Spere at him. It struck him a Little below the Shoulder and Peirced Quite through & 4 or 5 Inches the opposit Side. His Excellency was Down at Manly Cove and Spaking to two Natives which he formerly had

in his Possession (but Made there Escape) he had Gave them some Mate and Bread together with a Bottel of Wine Cloaths &c. &c. while he turned his head Round to Spake to one of the Men with him to keep a strick Eye on the Rest of the Natives. As there was a Great Number in all, he Received the Wound. the Governor Immediately fired a Pistol at the Person he Supposed hove the Spere. he was Immediately taken

Down to the Boat and brought Home. As Mr. White the Principal Surjon went that Morning on an Expedition, Mr. Balmaine, Assisten Surjon, took the Spere out and Dressed the Wound. The Governor Remains in Great Agonie, but it is thought he will Recover it though at the same time his Excellency is Highly Scurbutick."

Fortunately, for the colony, Phillip's wound healed without complication.

The early years of the colony have been fitly termed "the hungry years", for Phillip's constant worry was to find enough food to keep his people alive. Isolation made it necessary that they should be self-supporting, though at first everything seemed against this. At times actual starvation was imminent, and rations were reduced to the point where men faded from malnutrition, work dwindled and disease took a heavy toll. Breeding stock were killed and seed vegetables stolen by hungry men. The penalty for rifling gardens rose from 100 lashes to as high as 800. Men were executed for robbing the stores, including six marines, among the best of their regiment, who were hanged together. More and more people were sent to

Norfolk Island, where the gardens flourished, to ease the strain.

Most of Phillip's staff felt that the colony should be abandoned, and hated it during these desperate years. John White was among these, and cursed the place bitterly in his letters. On April 17, 1790, he wrote:

"[We have] not had an ounce of fresh animal food since we were first in the country; a country and place so forbidden and so hateful as to only merit execrations and curses; for it has been a source of expense to the country and of evil and misfortune to us . . . there is not a single article in the whole country . . . that can prove the smallest use or advantage to the mother country or the commercial world."

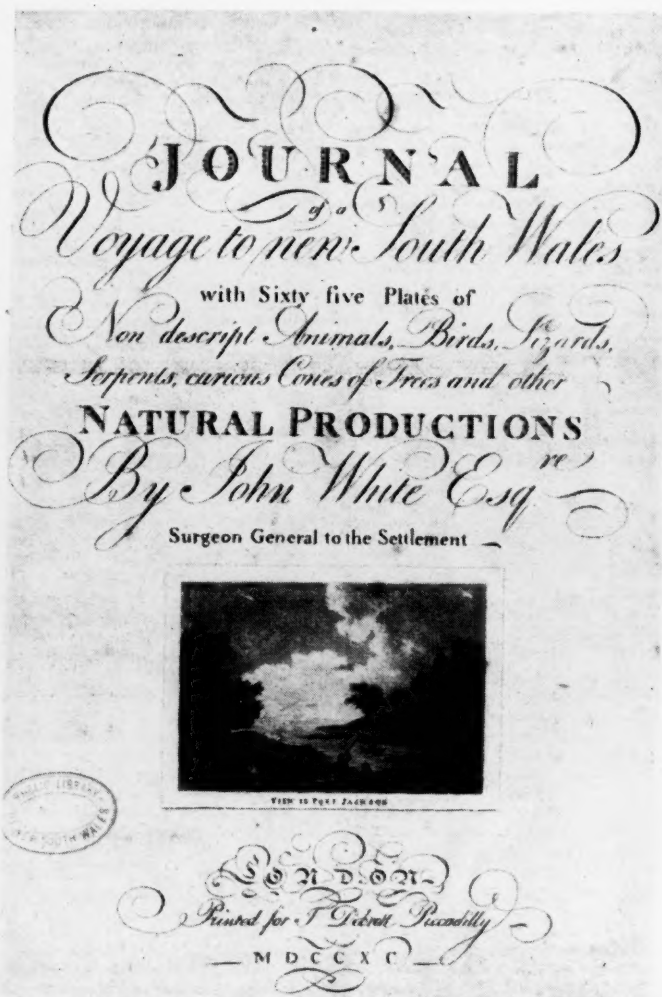


FIGURE 11.

Title page of John White's "Journal of a Voyage to New South Wales" (1790). (Mitchell Library, Sydney.)

Arthur Phillip, the great Governor, appears to stand alone in his disregard for present troubles, and his clear vision of the future. The colony would be, he said, the most valuable acquisition Great Britain ever made.

White left for England on leave in 1794, and never returned to Australia. He died in 1832. He guided the medical services of the colony, with ability and humanity, during the most difficult years of their existence.

#### William Balmain.

John White was succeeded, as Principal Surgeon, by his assistant, William Balmain. Balmain was a kindly and able man, strong and determined in character, but quick-

thereupon collectively challenged Balmain, and were gladly accepted, apparently on a one-after-another arrangement. However, the duel was stopped by Governor Hunter.

In 1795 George Bass, a naval surgeon, arrived in Sydney in His Majesty's Ship *Alliance*, which also carried his friend Matthew Flinders, who was to be associated with him in the great explorations that gave him a high place in our history. An excellent biography of Bass was published in 1952 by Keith Bowden, of Melbourne.

William Balmain left Sydney in 1801 to take his leave in England, and died there in 1803. The suburb of Balmain, which was later named after him, includes an area of 550 acres which was granted to him in 1800. Thomas Jamison



FIGURE III.

Sydney in 1803, engraved by F. Dukes, after a drawing by Edward Dayes. The hospital, with its gardens and wharf, appears in the right foreground. The cottages on the extreme right were occupied by the medical staff. (Mitchell Library, Sydney.)

tempered and truculent. His service was grossly short-staffed, for the population had grown from 2050 in 1790 to 5200 in 1800. He was also constantly short of medical stores, though he made insistent demands, which often irritated his superiors.

By this time the lightly constructed hospital buildings at Dawes Point had badly deteriorated, and their replacement was undertaken by Balmain. More substantial structures, with solid foundations, were erected on the same site. A contemporary drawing shows them as a collection of sturdy white-walled buildings, of single storey, with narrow windows and high-pitched shingled roofs. The grounds, with their vegetable gardens, were surrounded by a paling fence. The assistant surgeons lived in a neighbouring cottage, and a separate building was placed on the hill beyond for the use of the New South Wales Corps. Though conditions had improved, the hospital was still overcrowded and short of medical staff. Twenty-five male convicts were employed as attendants, and female convicts were now employed as nurses.

Balmain's temper at times caused serious trouble with his associates. An example of this followed an altercation with Captain Macarthur, of the New South Wales Corps, in which Balmain issued a challenge to a duel, which was refused. This annoyed the other officers of the Corps, who

was appointed Principal Surgeon in his place (Napier, 1928).

#### Smallpox and Vaccination in Early Sydney.

A year after the foundation of the colony, a severe epidemic of smallpox occurred in the aborigines of the Sydney district, and spread widely among the tribes. It was first indicated by the finding of many bodies of native victims in the bush about Port Jackson, and four infected aborigines were brought to the hospital. Despite such contact, only one case occurred in the settlement—that of a coloured seaman on the *Supply*, who died. There was great consternation, for smallpox, as yet unrestricted by vaccination, was one of the most dreaded of the pestilences.

Much speculation occurred, both at the time and in later years, on the origin of the outbreak, for smallpox was not reported on the voyage of the First Fleet, or in the ships of Cook or La Pérouse. Apart from missed cases on these vessels, and the possibility of the disease having already been established in the country, ships touching at the western coasts were also considered as likely sources. After reviewing the evidence, Cumpston (1914) thought it most likely that the virus was introduced in some way by Europeans, while Cleland (1911) postulated its introduction to the northern coasts by Malay or Macassar crews.



White's surgeons brought with them, according to Captain Watkin Tench (1793), "variulous matter in bottles", which suggests a further possible origin for the outbreak. The material was evidently brought for use in smallpox immunization by inoculation. This method, which preceded vaccination, consisted of the application, usually to a scratch, of material obtained from the early lesions of true smallpox. An attack of smallpox resulted, with consequent immunity. Such infections were usually mild, though a mortality of from 1% to 6% occurred. Strict isolation of inoculated patients was necessary, as these were as contagious as those with the natural disease, and many epidemics were attributed to carelessness in this regard. Inoculation was introduced into England from the East in 1714, and was made popular by the vivid Lady

supply arranged by him privately. In this he was supported, in 1806, by a letter from Jenner to the Colonial Office authorities. Savage wrote that his success had made for him "inveterate enemies" (*Historical Records of New South Wales*, 6: 202, 203). An earlier attempt, made by Savage, is reported in *The Sydney Gazette* of May 15, 1803, where it is noted that he was "trying the Effects of some [cow-pock] on some of the Orphan Children". However, it was announced a fortnight later that the trial was not successful.

A scheme for the general use of vaccination was arranged, but though smallpox was feared, this was received in much the same way as in later days. At this time Thomas Jamison published the first medical paper to be printed in Australia. It appeared in *The Sydney Gazette* of October 14, 1804, and was entitled "General Observations on the Smallpox". It warned the colonists of the great danger of smallpox, which "should [it] ever visit this colony in the natural state . . . would carry off nine-tenths of those who might receive the infection". There follows an offer of vaccination, "an infallible preventative of that loathsome, disgusting and too often fatal disease" (Ford, 1954).

Though Jamison's contribution to *The Sydney Gazette* was the first that could be termed a medical paper, this pioneer Australian newspaper, in the previous year, the first of its publication, printed two short passages on medical topics. The first of these, which appeared on July 10, 1803, under the title "Observations on Sore Throats", was apparently by a medical man. It indicates, for those who could not readily obtain professional advice, the treatment for the condition of sore throat which was then prevalent. This includes gentle purgation; the application of flannel, preferably impregnated with a liniment of oil and hartshorn, to the throat; gargling with barley or rice water in which saltpetre, about two teaspoonfuls to the quart, is dissolved; and inhalation of the steam of warm vinegar. It is also mentioned that for dangerous cases under a doctor's care, bleeding, blistering, and emetics are frequently considered necessary. The second contribution, of December 18, 1803, is in the form of a letter to the printer signed "A Milkmaid", and advocates the use of poultices of fresh cow dung for burns and scalds. This "easy, cheap, but efficacious tho' vulgar Application" is applied "as warm as new milk". Extensive or deep burns are to be covered with dressings soaked in linseed or sweet oil, hog's lard or fresh butter before being poulticed.

The vagaries of arm-to-arm vaccination caused the virus at times to be lost, after which it would be again obtained from England or from Norfolk Island. This method, with its risk of the transfer of disease, persisted until 1881, when calf lymph was first manufactured here.

Edward Jenner had tenuous associations with early Australia, for while he was a student of John Hunter in London he received, through his master's influence, the part-time work of arranging the botanical specimens collected by Banks and Solander on the voyage of the *Endeavour* (Underwood, 1949). The duplicates of this collection were, at the end of last century, presented by the home authorities to the State, and are now in the Sydney Herbarium. Later, after he had commenced practice in his Gloucestershire village, Jenner was offered the position of naturalist on Cook's second expedition, which sailed in 1772, but he refused to abandon the country life he loved.

#### The Chequered Life of William Redfern.

In 1808 the staff of the hospital at Dawes Point was joined by William Redfern, a man of great physical and moral courage and ability. He arrived as a convict, but eventually became the leading doctor and one of the principal citizens of Sydney.

Redfern received his medical training in London, and in 1797 entered the Royal Navy as surgeon's mate, at the age of nineteen years. He joined his ship a few months before the great mutinies of Spithead and the Nore, in which the crews of the home fleets, driven to desperation by their abominable conditions of service, refused to put to sea until these were improved.



FIGURE IV.  
William Redfern.

Mary Wortley-Montague, wife of the British Ambassador at Constantinople. The method was in restricted use in Britain until 1840, when, replaced by vaccination, it was prohibited by law. No evidence is known for the use of the "variulous matter" in the colony, though this is a possibility.

The discovery of vaccination was announced by Edward Jenner in 1798, about ten years after the first settlement, and within a few years the method was widely accepted. It caused great interest in the colony, and in 1803 Governor King requested the Colonial Secretary to send a supply of "vaccine matter", stating that "every search has been made on the teats of our cows but nothing of the kind can be found".

On May 7, 1804, a consignment of vaccine material was received in Sydney, and children were at once successfully vaccinated by Thomas Jamison, the Principal Surgeon, John Harris of the New South Wales Corps, and Assistant Surgeon Savage. A dispute later arose as to whose was the honour of performing the first vaccination. Savage claimed that the official virus, sent by the Royal Jennerian Society, had been lost on the voyage, and that success was due to a



Redfern's ship, His Majesty's Ship *Standard*, took part in the ill-fated mutiny of the *Nore*. In the thick of the trouble he advised the leaders not to give in, and was consequently involved in the widespread arrests that followed, and brought to trial. He was sentenced to death, with 59 others, but on account of his youth the sentence was commuted to life imprisonment. After four years in prison, he was sent to New South Wales in 1801. For seven years he worked in the hospital at Norfolk Island and was then transferred to Sydney. He was pardoned, and entered the medical service as assistant surgeon.

Redfern, who was bluff and fearless, became a natural leader of the emancipists, as the freed convicts were

home policy. During his inquiry he relentlessly sought to humiliate Redfern, who stoutly resisted him. He said that Redfern was the only man in the colony to flout his authority.

As a result of his advice and the pressure of the local anti-emancipist faction, Redfern was bitterly disappointed in his hope of being given the post of Principal Surgeon on Wentworth's retirement, which had been promised him. The post was given to Bowman, a newcomer to Sydney, and Redfern angrily resigned from the service.

To lighten his disappointment Macquarie appointed him a magistrate at Airds, where he had a country estate, to



FIGURE V.

Sydney about 1821, by James Taylor, Major, His Majesty's 48th Regiment. The military hospital, completed in 1815, stands in the foreground. The white-robed figures in its grounds are convalescent patients. The convict hospital, with a block of surgeon's quarters at either end, is shown in the distance. On its right appear the Hyde Park Barracks and Saint James's Church, with its spire yet unbuilt. Saint Philip's Church is seen in the right foreground. (Mitchell Library, Sydney.)

called. He became the friend as well as the physician of Governor Lachlan Macquarie, despite the opposition of an influential section of local society, which detested the rise of ex-convicts.

Macquarie, like Phillip, had visions of Australia as a great nation of free men, and supported the emancipist class. The home government regarded the colony as a prison, where law-breakers should be punished and reformed by severity. Macquarie believed that reform could be best achieved by kindness and opportunity for citizenship. Freed convicts should not be outcasts, he said, but should be received according to their deserts. They were essential to his policy of colonial development. On the other hand, the English authorities regarded such development as a secondary consideration. The clash of these policies brought trouble and disappointment to Macquarie, and involved Redfern, incidentally, in bitter strife.

Commissioner J. T. Bigge, who was appointed in 1818 to investigate the state of the colony, and was invested with powers even wider than those of the Governor, opposed Macquarie's emancipist ideas, in conformity with

which he planned to retire. But this, too, was circumvented, for in about a year he was removed from office by the home authorities.

Redfern took an important part in the community life of Sydney and engaged in many social, philanthropic and business activities. He was associated with the Benevolent Society of New South Wales, the first Australian charitable institution, from its commencement in 1813 until he retired from practice in 1824, and was for many years its honorary medical officer. The society, which was formed for the alleviation of cases of distress for which other aid was not available, was first known as the Society for Promoting Christian Knowledge and Benevolence. In 1818 it was reorganized, and under its present name it has carried on its great work to our day, its current activities including the Royal Hospital for Women, the Renwick Hospital for Infants, and other institutions. Redfern was also one of the first directors of the Bank of New South Wales, the first Australian banking institution.

Redfern had wide agricultural interests, and gained the reputation of being one of the best practical farmers in the country. He held large estates in various parts of the

colony. His 100 acre farm on the outskirts of Sydney town gave the name of Redfern to the suburb which later developed in the vicinity. Another property, Campbell Fields, in the Airds district, which was his country home, was regarded as one of the most highly developed estates in the colony. He introduced improved farming methods, imported cattle and merino sheep, and procured vines and vine dressers from Madeira. After 1824 Redfern gradually relinquished his medical practice in Sydney, and in 1826 he retired to his farm at Campbell Fields. Two years later he left Australia to take his son to Edinburgh to be educated, and died there in 1833 (Dunlop, 1928; Ford, 1953).

#### The Foundation of the General Hospital.

When Governor Macquarie assumed office in December, 1809, he found the old hospital at Dawes Point "in a most ruinous state and very unfit for the reception of the sick . . . of which there are . . . seldom less than seventy or eighty men, women and children". He at once determined to replace it by a large building situated on a ridge near Government House, where a new street, bearing his name, was made. This plan was recommended in Macquarie's first official dispatch to the Secretary of State for the Colonies, on March 8, 1810. It formed one of the earliest projects in the ambitious building programme which marked his régime.

To conserve the funds of the Colonial Treasury, Macquarie accepted a highly irregular tender for the work, by which the contractors were to receive, by way of remuneration, the right of importing 45,000 gallons of spirits for sale in the colony. Their interest was to be safeguarded by the cessation of the issue of import licences to other persons for three years. This arrangement was open to the serious criticism that it contravened special instructions for the control of the liquor traffic, which had attained scandalous proportions during the iniquitous reign of the New South Wales Corps, and also that the Acting Principal Surgeon, D'Arcy Wentworth, was allowed to be one of the contractors. On account of its origin, the hospital long bore the nickname "The Rum Hospital".

With characteristic foresight, Macquarie built the new General Hospital large enough to meet for many years the needs of the growing colony, as far as its convict population was concerned. It consisted of a main two-storied central block of the hospital proper, with detached staff quarters of similar design at either end. It was surrounded by a high stone wall, to prevent the escape of its convict patients.

The hospital was opened in 1816, with Assistant Surgeon William Redfern in immediate charge. He lived—later with other assistant surgeons—in the southern wing, which still stands, in a largely unaltered condition, as the Housing Commission building. The Principal Surgeon, Wentworth, resided in the northern wing, which now forms the central part of Parliament House. The main block was demolished in 1879, and the present Sydney Hospital building was erected on the site, and opened in 1894.

The General Hospital was used for the care of convicts until 1848, after the cessation of transportation in 1841. Thereafter it became a public charitable institution under the name of the Sydney Infirmary and Dispensary—the southern wing having already been used for this purpose since 1843. Its name was changed to the Sydney Hospital when it was incorporated by an Act in 1881.

#### Practice at the Convict Hospital.

The work of Redfern and his colleagues at the General Hospital is known in some detail from the evidence of the intensive investigation into the affairs of the colony made by Commissioner J. T. Bigge, who arrived in Sydney in 1819. For two years Bigge ably conducted his examination of local conditions, and his great report (1823) and its supporting papers are main sources of information on the early colony. A transcript of the bulky evidence of the Commission, from the Colonial Office originals, is in the Mitchell Library. In this the medical practitioners of the

colony are represented by their answers to Bigge's searching questions. Among them the forthright and independent Redfern stands out vividly, the pages imparting something of his dominant personality. J. F. Watson's interesting description of the time, in his "History of the Sydney Hospital" (1911), is derived from this source.

In the first year of the new hospital, all the medical work was performed by Redfern, helped by his young apprentice, Henry Cowper. Wentworth, the Principal Surgeon, was engaged almost entirely in administrative duties, including the control of the police force, and entered the wards infrequently as a consultant. In 1817 the staff was supplemented by the appointment of R. W. Owen as assistant surgeon.

Apart from the medical officers, the staff, including the overseer, dispenser, clerks, matron, nurses and attendants, were all convicts. Most of them were posted to the hospital without regard for their personal desires, and excepting the overseer, who drew £10 a year, received no pay or perquisites for their work. They were for the most part uninterested and often badly behaved, and their work was regarded as unsatisfactory by the medical staff, and doubtless also by the unfortunate patients. The convict nurses conformed to the type that existed in hospitals generally before the reforms of Florence Nightingale, and were often drunken and dissolute. A midwife was included in their number. Despite the poorness and crudity of the hospital care provided by such a staff, it was probably of the general standard of English hospitals at the time.

Each day Redfern was engaged busily at the hospital till noon, and devoted the afternoon to his private practice. He commenced work at eight o'clock, or earlier, when he made a round of all patients in the wards, accompanied by his assistant and the convict clerk, who made notes of the treatment ordered. He then issued supplies from the store-room, of which he personally kept the keys, for there was no member of the staff to whom he could entrust them. The stealing of stores and medicines, which were in short supply and found a ready sale in the town, was a source of constant trouble. Wentworth reported that when Redfern was away on a country journey, there was no reliable person left who could be given charge of the stores. Henry Cowper, the apprentice, was included in this ban, for on several occasions he had been in trouble for making gifts of hospital supplies to his friends. To prevent the stealing of drugs, Redfern personally supervised the making of bulk medicines in the dispensary. In discussing this, he gave as an example the making of stock solutions of epsom salts, which were copiously used. On such occasions he would watch the addition of the boiling water to the salts, lest, as he said, the water and the salts went to different destinations. His clerk, a convict on life sentence, reported that, in Dr. Redfern's absence, drugs were not usually weighed, but their amounts guessed. They were always carefully weighed, however, when he was present, for his violent reaction, in word and deed, to carelessness or indiscipline was greatly feared.

A clinic for out-patient convicts from the labour gangs and the town was held each morning at the dispensary. This was attended by Cowper, or an assistant surgeon when available. Apart from the dressing of wounds, purgation appears to have been the main form of treatment used. Medicines were usually drunk there and then, though they were occasionally issued in bottles.

Each summer the hospital was overcrowded with sufferers from dysentery, which had existed since the first settlement as the most common and fatal disease. The poor nursing care and primitive sanitary arrangements at such times made the wards particularly uncomfortable and malodorous. Typhoid fever undoubtedly occurred also, and swelled the mortality ascribed to dysentery. "The venereal complaint" was responsible for a high proportion of admissions, and rheumatism was also common. Sufferers from scurvy and typhus were at times admitted from convict vessels, though the latter was never implanted in the colony. Respiratory diseases were reported to be of low incidence, and diphtheria, measles and whooping-cough were not yet introduced.

Little record exists of the details of treatment provided. Purgatives were used in large amounts, and calomel, jalap, salts and rhubarb formed a large part of the drug stores. Opium and laudanum were mainstays, and various emetics were frequently given. Bleeding and cupping were also freely used—the former, together with purging, being the lot of a large proportion of patients. Dysentery was treated with calomel and bleeding, though the gums of native trees, which were commonly used in home treatment, were also prescribed. Bigge was told by Henry Cowper that the difference in the treatment of this disease by Wentworth and by Bowman, his successor, was that the former did not bleed his patients so copiously, unless inflammation was marked, nor did he give them calomel

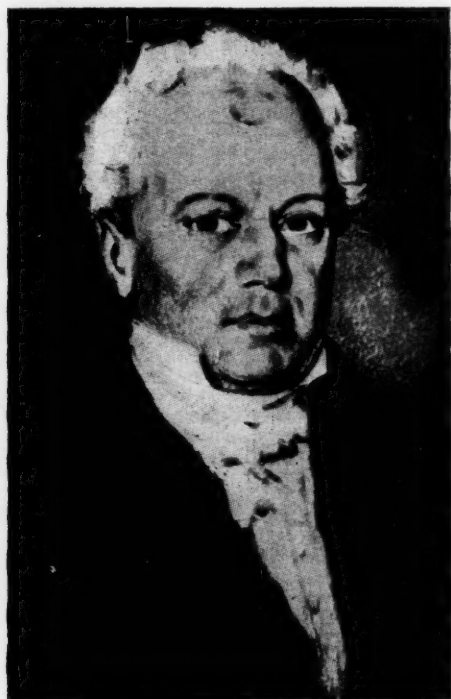


FIGURE VI.  
William Bland.

in such large quantities. The discomforts of Bowman's more modern treatment were also increased by a low diet, which made it extremely unpopular, and, according to Cowper, consequently reduced the average length of stay in hospital. It was also given as the reason for the failure of many patients to seek treatment until they were in a moribund condition. When asked by the Commissioner which treatment he thought better, Cowper tactfully selected that of his present chief medical officer.

The copious bleedings, which were fashionable, were greatly disliked by the patients and caused them to call the hospital "the Sydney Slaughter-house". Henry Cowper one day removed about four pints of blood, in two sessions, from a patient diagnosed as suffering from "brain fever". He was allowed to get up directly after the second operation, and died suddenly. Cowper reported that death was due to an insufficiency of blood to circulate through the lungs, and to the carelessness of the wardsmen in allowing him to move about.

In the early years of the new hospital, little surgical treatment was undertaken, apart from minor operations. Three amputations and a paracentesis form the total list for the first three years.

The food supply had greatly improved since John White's lean years, but there was still no special hospital diet, and all patients received an uncooked allowance of one pound of flour and one pound of meat a day. At times unground wheat was issued in the ration, this being exchanged with the bakers for bread. Vegetables were issued only to scurvy sufferers. To purchase tea, sugar, milk or other food, patients sold or bartered their meat ration, and on issue days crowds would gather from the town to buy. Some improvement occurred through Redfern's arranging for the sale of the meat of selected patients and with the proceeds obtaining milk and other suitable food for them. Meals for certain patients were often provided from the doctors' quarters. Within a few years, during Bowman's administration, a special hospital diet was introduced.

No provision was made at the hospital for the preparation of food, for though two kitchens had been built, these were used for other purposes, and there was no cook appointed to the staff. The patients consequently cooked their own food on the ward fires, which caused much dirt and disorder and filled the place with smoke and smells.

It was compulsory that a member of the medical staff should be present at all floggings at the gaol or the Hyde Park Barracks, to see that unfit men were not punished, and that serious injury was not caused. In earlier times medical attendance was not always required for what was called "minor punishment"—that is, up to 100 lashes. Floggings often lasted up to two hours, and blood was usually drawn at the first three or four strokes. The forced attendance of medical officers at these scenes of brutality gave rise to great disaffection, and at times led to charges of disobedience to orders, from refusal to attend them, or to resignations from the service.

The rigid penal discipline of the institution was associated with surprising laxity during Wentworth's administration. At six in the evening the hospital was locked by the overseer, and all night the patients were left entirely without nursing care or supervision. Disorder then reigned, doubtless with extreme misery for the sick. The patients closed the windows, usually left open at the top for ventilation—it was said to keep in the noise. The wards consequently became very offensive, especially in the dysentery season, from the metal pans placed under each bed. However, Assistant Surgeon Owen considered that "they were not more so than he had observed in hospitals in London". At first free communication was allowed between male and female wards, but this gave rise to such abuses that the communicating doors were locked. A number of culprits were flogged in the hospital yard or given solitary confinement, while the female offenders were sent to the factory at Parramatta.

In Sydney, as in England at this time, it was part of the grim sentence of death that the bodies of executed malefactors should be "delivered to the Surgeons to be dissected and anatomized". For this they were taken to the hospital, though the arrangement was not welcomed. This was probably on account of the absence of a proper mortuary, though a disused kitchen for many years served the purpose. In 1823 a dispute arose between the Provost-Marshal and the hospital, when the latter refused to accept the body of an executed murderer on the grounds that there was "no room for it there". The corpse was left in the street, outside the hospital gates, for the greater part of a day, before it was buried. In the meantime William Bland applied to the Judge-Advocate for the body, for dissection, but was too late (*Historical Records of Australia*, Series 1, 6: 168).

#### Professional Qualification and Medical Training in Early New South Wales.

Up to 1808, all members of the medical service of the colony held qualifications that they had received in the homeland. In that year, freed by the Governor's pardon, William Redfern was appointed as assistant surgeon. He had passed the examination of the Company of Surgeons of London, the precursor of the Royal College of Surgeons of England, before receiving his naval commission of



surgeon's mate, but had not received a diploma, perhaps because of early posting to his ship. His subsequent trial and imprisonment, therefore, left him without evidence of professional qualification.

The Lieutenant-Governor consequently arranged for an examination board to be appointed, consisting of Thomas Jamison, the Principal Medical Officer, John Harris, Surgeon of the New South Wales Corps, and William Bohan, Assistant Surgeon to the Corps. Redfern appeared before them for examination in "Medicine, Surgery and other necessary collateral branches of Medical Literature". He passed and received a certificate, dated September 1, 1808, which was the first medical diploma granted in Australia. In it his examiners testified that he was qualified to fill the position of assistant surgeon in His Majesty's Services (*Historical Records of Australia*, Series 1, 6: 647).

For many years a similar system of compulsory examination was maintained for persons wishing to practise in the colony. The names of unsuccessful candidates were announced in *The Sydney Gazette*, and they were not allowed to practise.

The first student teaching in Australia was undertaken by Redfern, who in 1813, at the old hospital at Dawes Point, commenced the training of an apprentice, James Shears. The boy died the following year, and his place was taken by the fourteen year old Henry Cowper, son of the first Archdeacon of Sydney. The training, for which no fees were accepted, was probably similar to that which Redfern had himself received (Bigge, Appendix, Volume 124). He became responsible for both the medical and general education of his apprentice, who lived with him as one of the family and served as his assistant. On Redfern's transfer to the new General Hospital in 1816, Cowper was for a long time his only medical assistant, and was often left in charge of the hospital. He acted as dresser, dispensed medicines and made himself generally useful, and altogether appears to have been kept busy. At any rate, when he was once reproved by Redfern for not keeping proper ward notes, he gave the student's standard reply: "I have so much to do that I was not able to attend to the reports."

The paternal relationship of Redfern to his apprentice extended to the maintenance of good discipline and deportment, and Henry was often rebuked, and even beaten, for his indiscretions. These included the stealing of stores, carelessness in giving out the medicines, tearing the dispensary books, guessing instead of weighing the contents of medicines, and associating with dissolute companions. His practice of making gifts to friends from the store-room often involved him in trouble, and terminated seriously on the occasion of his presentation of stockings and other clothing to a nurse, whose company was considered particularly undesirable. For this he received a thrashing, and was never trusted with the keys again. One occasion of his master's wrath at his wrong-doing was indignantly recorded by Henry: "... he was in a great rage with me making use of very indecent language to me and calling me puppy blackguard and several similar epithets and then struck me so violently on the head as to cause it to ache for three hours afterwards." (Bigge, Appendix, Volume 124.)

Cowper served three years' apprenticeship and was then appointed assistant at the hospital, a position resembling that of a resident medical officer of today. After two years of such service Redfern reported that he was well trained and efficient.

William Bland also trained an apprentice, William Sherwin, a native of Parramatta, who commenced work with him in 1817, at the age of thirteen years. He remained with his master till 1824, when he went to England and became a Member of the Royal College of Surgeons. On his return to Australia he made an adventurous sojourn as doctor to the ill-fated Melville Island settlement, replacing Dr. Gold, who had been killed by aborigines. Later he practised at Parramatta, and subsequently in Sydney (Brown, 1937; McIntosh, 1954).

#### Private Practice by Government Doctors.

As the years passed, the population of the colony, which at first consisted only of officials and convicts, contained a rapidly increasing proportion of free settlers and emancipated convicts. Though the maintenance of such persons was not the responsibility of the Crown, the provision of medical assistance, when required by them, was the duty of the colonial surgeons. No fees were chargeable for such services. With the shortage of medical officers, the poorness of salaries and the growing burden of such work, much dissatisfaction was felt by the assistant surgeons. This came to a head in 1805, during the régime of Governor King, when Assistant Surgeon James Mileham refused to attend a woman in labour in the General Hospital. For this he was tried by court-martial for disobedience to orders and neglect of duty, and on being found guilty on both charges, was publicly reprimanded by the Governor. In a report of the Principal Surgeon, Thomas Jamison, who laid the charges, it was stated that such neglect "must ultimately terminate in the loss of the lives of many of His Majesty's subjects in this colony if some decisive steps are not taken ... as medical assistance in the present state of the colony cannot be obtained".

Two years previously, after an altercation between the Principal Surgeon and Mileham, the former had been charged with assault and battery upon his subordinate. But Jamison was acquitted on the grounds that Mileham had attacked him first, though he was bound over for three years "to keep the peace towards all His Majesty's liege subjects" (*Sydney Gazette*, May 29, 1803).

Shortly after Mileham's disgrace, another assistant surgeon, John Savage, who was stationed at Parramatta, was tried by court-martial on similar charges relating to the neglect of a settler's wife. In this instance the case was aggravated by the death of the unfortunate patient under the treatment of an unskilled midwife. Savage was found guilty and cashiered, but the charge was not confirmed by the home authorities. In the meantime, however, he had left the country for service with the East India Company.

Governor King was now able to report in a dispatch of August 12, 1806, that the misunderstandings about the duties of medical officers had ceased. However, he announced in order "that every admissible advantage may be enjoyed by persons whose education has been liberal, and whose pay is so very inadequate to their situation", that they were to be allowed to receive payment for services to persons not employed by the Crown. It was understood that they would continue to attend, without fee, those in impoverished circumstances. The salaries of the medical staff had been increased since John White's time, and the Principal Surgeon now received £365 a year, and of the four assistant surgeons, one received £182 10s., two £137 17s. 6d. each, and one £91 5s. a year (*Historical Records of New South Wales*, Volumes 5 and 6).

The whole of the medical work of the colony was conducted by the colonial surgeons on such a basis until 1815, when the first independent practice was established. Until he relinquished medical work in 1824, William Redfern, as the most popular doctor of his time, had the largest share of private practice in Sydney. His patients were drawn from all classes, and extended from the families of Governor Macquarie and leading citizens such as John Macarthur and John Wyld, to the destitute persons whom he visited without a fee.

Redfern had a brusque and direct manner, and wasted little time on formal politeness, and it was said that he treated all patients alike. On his retirement from practice the *Sydney Gazette* (September 6, 1826) remarked that "His manner may not be so winning or seductive as might be wished, but then his experience (and) skill ... make ample amends for any apparent absence of overflowing politeness". He was disdained by many as an emancipist, but received slights with uncompromising pride and independence, and often with biting and violent response. However, his position as a doctor was unquestioned, and even the hostile Bigge freely admitted his superiority.



Despite all opposition, Redfern was a force in the town, and his recognition extended from the friendship of Macquarie to the worship of poor ex-convicts.

Redfern's work-day had the arduousness of that of the busy general practitioner of today. From seven or eight o'clock in the morning until noon, he was engaged on his official work at the General Hospital, and the remainder of the day, and often much of the night, was occupied by his private patients. He frequently made long journeys on horseback, sometimes extending to two days, to country patients. The assistant surgeons once petitioned for the provision of a horse for this purpose, but this was refused, presumably because of the private nature of such work. Redfern's labours were extended by his reputation as the best obstetrician in the colony, as his services were widely sought. He received a fee of five pounds for a confinement from those in a position to pay, and gave free service to the poor.

At this time treatment was also provided by quacks and herbalists, though in many cases this may have amounted to no more than assistance given by neighbours with domestic remedies and country simples. The severity of the dysentery which affected many patients in 1820 was said to have been due to their long treatment by quacks, as the heavy bleeding and low diet of that period made hospital attendance unpopular. It was also reported that some of the convict wardsmen had their practices in the town, and Henry Cowper, while Redfern's apprentice, was also accused of this.

There were two drug shops in Sydney in Macquarie's day, one in O'Connell Street and one on the Rocks. Henry Cowper said that only simple sorts of

medicines were sold at these, and he did not "believe they could make up a prescription if it was sent to them".

#### William Bland and the Beginning of Private Medical Practice.

The first wholly private practice in Sydney was established by William Bland in 1815. Like Redfern, Bland had been a naval surgeon and a convict. He was born in London in 1789, and after a good education received his medical training as apprentice to his father, a well-known London doctor, and in London hospitals. At the age of

twenty years he qualified at the Royal College of Surgeons, and was later appointed surgeon's mate in the Navy.

In 1813, when his ship, His Majesty's Ship *Hester*, lay at Bombay, he became engaged in a quarrel with the purser of the vessel. A challenge was issued and a duel with pistols took place ashore. The contestants fired together, and Bland's opponent fell with a mortal wound in the abdomen. Bland was tried for murder in Bombay, and was

found guilty and sentenced to transportation for seven years. He arrived in Sydney as a convict in 1814, at the age of twenty-four years. Years later, to allay "certain misconceptions", he wrote an account of this episode (Mackaness, 1942). An important study of Bland and his influence on Australian medical and political life was published by A. M. McIntosh (1954).

Within a few months of his arrival in Sydney, Bland was placed in medical charge of the patients at the lunatic asylum at Castle Hill. This first Australian mental hospital was established in 1811, prior to which all mentally affected patients were confined in the gaol at Parramatta. The institution was removed to Liverpool in 1827.

During Bland's period of service the asylum was located in an old barn, surrounded by a high stockade. It provided accommodation for 50 patients. He found that conditions were "as bad as possible" and that little attention was paid to comfort and cleanliness. On his arrival there were no medicines, and only trifling supplies came later. The superintendent, a convict supervisor, was constantly in opposition to the visiting medical officer from Parramatta, and interfered with Bland's work. The single attendant was frequently away from the place, and during

his absence the inmates were all confined in chains.

It was about this time that the great reforms in the management of the insane were being introduced in Europe, though a half century passed before the practice of chaining patients, often in conditions of hardship and cruelty, was generally abandoned. The posting of Bland to the asylum suggests that the new outlook was making itself felt in the colony, and he later reported that he had established "the mild and rational system of managing the patients which of late years have been established in most of our asylums at home . . . and I believe with the best

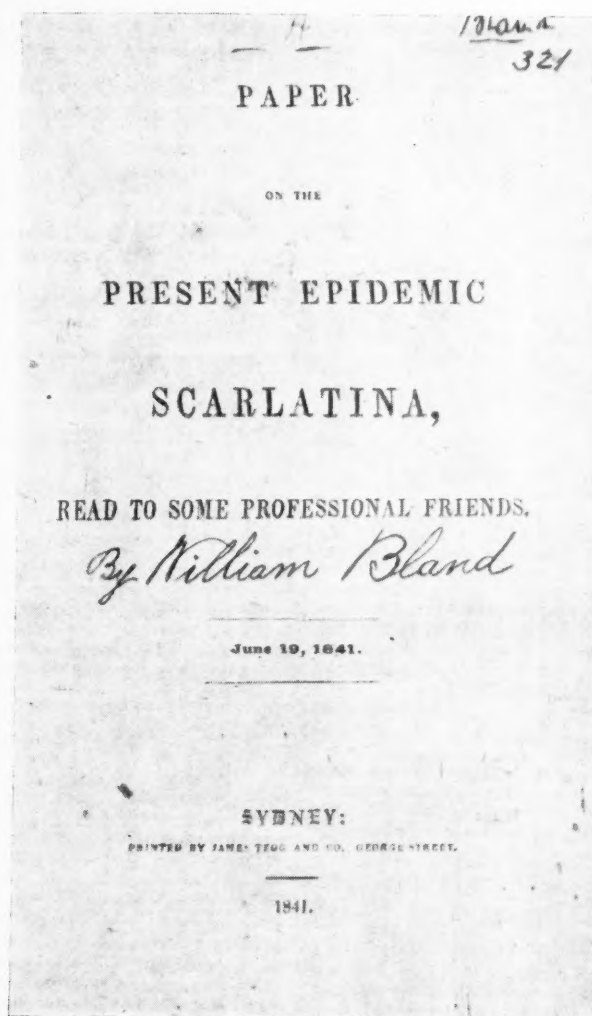


FIGURE VII.

Title page of William Bland's pamphlet, "On the Present Epidemic of Scarlatina" (1841), one of the earliest Australian medical publications. (Public Library of New South Wales.)

results". He received no payment for his work, though he was allowed extra rations and the right of cultivating a plot of land at Castle Hill (Bigge, Appendix, Box 14).

For about a year Bland worked discontentedly at the asylum, and was then transferred to Sydney. In the same year, 1815, he was pardoned, and free to pursue his own ends. After a few months of disappointing practice, he applied for an appointment in the Medical Service. He was offered a post at Port Dalrymple, in Van Diemen's Land, with the provision that he should first appear for examination before the local board, to prove his professional ability. This he declined to do, stating that he held testimonials from the Royal College of Surgeons, and as Surgeon in the Royal Navy (Bigge, Appendix, Box 14). His application was thereupon refused and he settled down to private practice in Sydney.

The time was ripe for this, for the overworked Redfern was then conducting, with the help of his apprentice, Cowper, all the medical work of the settlement. The population of the colony was growing rapidly and from 11,500 in 1810 reached 33,500 in 1820. Within a short time a second private practitioner, Parmentier, set up in the town; this for a time relieved the shortage of doctors.

Bland was a competent and kindly doctor, and his practice and reputation grew rapidly, despite the anti-émancipist feelings of a section of the community. But Governor Macquarie's policy and personal inclination of supporting worthy ex-convicts, so generously applied in the case of Redfern, was nullified in regard to Bland by mutual antagonism. Bland became the greatest of the emancipists and had hopes for the future of the colony that were akin to those of the Governor, but their relations were marked by constant hostility.

From the first, Bland was interested in politics, and was an energetic worker for the betterment of the colony. His criticism of the authorities brought him into trouble very soon, for in 1818 he circulated a rhymed lampoon, or "pipe" as it was called, deriding Macquarie's administration. It was usual to pass such scurrilous pieces from hand to hand, and disaster occurred through the current reader, after visiting the Halfway Tavern, being thrown from his horse in Parramatta Road and losing the book containing the verse. It found its way into official hands, and Bland was arrested. He was charged with libel and sent to Parramatta gaol for twelve months and fined £50.

Upon his release, Bland resumed his practice in Pitt Street. In 1821 he stated that he received five shillings a visit from patients, though he accepted no fees from poor persons. Unlike Redfern, who made long professional visits to the country, he restricted his practice to Sydney town. At this time he said that the most common ailments treated by him were dysentery, liver complaints and worms in children. In the same year the commonest complaints at the Military Hospital, according to Surgeon Stephenson of the 24th Regiment, were dysentery, fever and ophthalmia, and at the General Hospital dysentery, rheumatism and venereal disease—the last-mentioned being the most frequent cause for the admission of female patients.

In these years the lot of sick paupers was pitiful, though some relief was afforded by the establishment of the Benevolent Society in 1813. However, Bland noted that though the poorer classes lived in meagrely furnished, insanitary hovels, there was not nearly so much want and misery in Sydney as in English towns. As in England, extreme drunkenness and depravity were widespread in the poorer quarters, and he was especially concerned about the handicaps to the proper development of children, and the frequency of the corruption of young women, in the debasing conditions that prevailed. Like Redfern, Bland gave much time to charitable work among the unfortunates of the town. He attended them in their homes and served as honorary surgeon to the pioneer institutions—the Benevolent Asylum and the Sydney Dispensary—both of which he helped to found.

#### *The Rise of William Bland.*

In 1820 the Benevolent Society extended its activities by establishing the Benevolent Asylum, which was erected on

part of the site now occupied by the Sydney Central Railway Station. It was opened in 1821, and filled such a need that its accommodation was at once taxed to the utmost. Bland was one of the founders of the asylum, and served as honorary surgeon until 1863.

At first the sick inmates of the asylum were treated in their own quarters, for there was yet no public hospital for their care. Special arrangements could be made for the admission of sick paupers to the General Hospital; but since this was essentially a convict institution, this course was most unpopular with the free part of the community. In 1825 Bland was asked to plan additions to the asylum for hospital purposes. He recommended 30 or 40 bed wards, with baths and proper ventilation, as well as "a dead room . . . furnished with a strong plain table . . . convertible when required into an operation room" (*Historical Records of Australia*, Series 1, 6: 865). The new buildings were opened in 1832, when, as well as a refuge for the poor, the asylum became also the first Australian hospital for free citizens. The obstetric section of the asylum was the honourable forerunner of the Royal Hospital for Women.

Bland also took a leading part in the foundation of the Sydney Dispensary, which was commenced in 1826 for the charitable treatment of the poor in their homes, and as out-patients. For its administration, the town was divided into four parishes, and each of these into four districts. Each district had an honorary medical officer and a visitor, the latter being members who sought the needy sick and arranged for their care. The dispensary was first situated in Macquarie Street opposite the hospital, and later moved to Pitt Street. The Australian Subscription Library, which later became the Public Library, occupied the same building, and for a time the dispenser also acted as librarian. The work of the dispensary increased as the population grew, and the Government was requested to provide a site for a larger building. An area near the Benevolent Asylum was offered, but was rejected as unsuitable on account of its distance from the poorer parts of the town. A further request was made for the use of the south wing of the General Hospital for a new dispensary and free hospital, under public management and subscription, and the establishment of a medical school was also mentioned. After some delay the request was granted, and a dispensary and wards were opened in 1845. The institution was now called the Sydney Infirmary and Dispensary, and was the immediate forerunner of the Sydney Hospital. Bland was a life member of the dispensary, and acted as its honorary surgeon to the time of its extension.

At the height of his powers Bland was regarded as the foremost surgeon in Australia. He resorted to operation only when other methods of treatment failed. Like all surgeons of the day, he had to weigh the hazards of almost certain sepsis, and of inevitable distress and shock, for most of his surgery was performed before the days of general anaesthesia.

It was in the morgue of the Benevolent Asylum, converted when necessary for use as an operating theatre, that Bland built up his surgical reputation. His range was wide, and included many operations never undertaken here before. Among these was the procedure of tying the innominate artery for the relief of aneurysm, which he performed on two occasions. The first of these, in 1832, was the seventh time this operation was ever carried out (Gordon-Taylor, 1950). The patient was a convict who had been greatly distressed for two years, and was expected to live for only a few weeks longer. He repeatedly begged Bland, whose skill was by this time known throughout the colony, to operate upon him. With the Governor's consent he was removed from the General Hospital, of which he was a patient, to the Benevolent Asylum for this purpose. The long operation was successfully completed, but on the eighteenth day the patient died of secondary hæmorrhage, due to sepsis. In 1838 Bland again performed this operation, but with the same result. An account of these operations, and of the associated bitter controversy in the public Press, is given by McIntosh (1954). According to the same author (1951), Bland appears to have established

a local standard of surgery comparable with that found anywhere else in the world.

Criticism that was often highly defamatory, as in the foregoing instance, and discussions of medical practice and ethics commonly appeared in the public Press of the last century, often with a detail now seen only in professional journals. Pamphlets and broadsheets were also published by doctors on disputed subjects, frequently with a vehemence and bitterness that are fortunately no longer fashionable. The rise of the medical societies where differences could be ventilated without publicity, and of the medical journals, gradually put an end to such literature.

Bland had an ingenious turn of mind, and was responsible for a number of inventions, including surgical instruments which he used. In 1848 he announced a method of extinguishing fires on wool ships by the use of carbon dioxide. This consisted of stowing among the cargo barrels of marble chips, which were connected with the deck by pipes. On the outbreak of a fire in the hold, acid could be poured down the pipes, which would generate carbon dioxide and so put out the fire. He published this scheme and it was said to have been applied to fires in mines. He also published, in 1855, the plans and description of an air-ship, which he called an "atmotic ship". It consisted of a sausage-shaped hydrogen-filled balloon with a suspended cabin beneath for passengers, which, it was suggested, could be propelled by steam and sail. He considered that such a ship would shorten the voyage from Australia to England from two or three months to five or six days. It may be thought that Bland's plans for an airship, so long before its day, were of the nature of a Jules Verne fantasy to him, but he really thought the scheme possible. He referred his plans to an English engineer, and a model was exhibited in London at the Crystal Palace Exhibition.

Bland was a pioneer of Australian education, and with others founded the Sydney College in 1825, as well as the Sydney Mechanics' School of Arts. He was also associated with the foundation of the University of Sydney when his friend, W. C. Wentworth, in 1849, introduced the Bill for its establishment. Trouble arose over nominations for the first Senate, which were included in the Bill, and among which Bland's name appeared. The inclusion of an ex-convict was strongly attacked by Robert Lowe, the able member who, after his return to England in 1850, became Lord Sherbrooke and Lord Chancellor of Gladstone's first Government. His speech included a bitter personal attack on Bland. In his eyes such people were felons, and it did not matter "whether the individual was steeped to the lips in crime, or innocent altogether". No English scholars "would consent, for the largest sum of money that could be given . . . to act as professors under a direction in which any person . . . transported for crime would form a member". If he were elected, he would not sit on the Senate with such a person.

Bland read the speech next morning, and at once sent an enraged letter to Lowe, charging him with personal malignity and calling him a coward and a scoundrel. It is usually said that he challenged Lowe to a duel, but his letter in the Mitchell Library, its writing marking his fury, states that he would do so if Lowe was not known to evade, in a craven fashion, such outcome of his insults. This dispute held up the passage of the Bill for two years, and neither Bland nor Lowe became a Fellow of the first Senate.

Bland's high place in Australian political history rises from his long and determined struggle for representative government for the colony. From the time of his emancipation he was a critic of the oppressive penal administration, and became an ardent advocate for the development of a self-governing colony, with the right of electing representatives, trial by jury, and a free Press. In 1835, with Sir John Jamison (son of the early Principal Surgeon and himself a naval surgeon) as president, and W. C. Wentworth (another Principal Surgeon's son) as vice-president, he formed, with others, the Australian Patriotic Association to press for these objectives. Under the forceful guidance of Wentworth the association achieved

its aims, and in 1843 the first elections for the newly established Legislative Council were held. Wentworth and Bland topped the polls for Sydney. This initial election was a lively one, with rough carnival and some riot, which included the breaking up of polling booths, the placing of troops under arms, police charges on the crowds, and the chasing of the chief of police with sticks and stones into Hyde Park Barracks.

At a second election, in 1848, Bland lost his seat through his support of an unpopular measure for the resumption of a modified form of transportation. But in 1856, when the introduction of full representative government crowned his labours, he was appointed to the Legislative Council, where he held office till his retirement from political life in 1861. He amassed no riches, for a large part of his time and efforts was laboriously devoted to the philanthropic and political activities that were near his heart. He practised at his residence in College Street, Sydney, until his death in 1868, in his seventy-ninth year. Dr. Robert Scot Skirving, who came to Sydney some fifteen years later, said that the memory of the old doctor was then green, and that he was loved and respected as few men of the day. William Bland was one of the great Australians of his time, and occupies a high place in the history of New South Wales.

During Bland's fifty-four eventful years in Sydney, most of his ambitions were fulfilled, or had their foundations firmly laid. The grim penal settlement of his convict days was transmuted to a self-governing colony, endowed with the free institutions for which he had striven, and marked by a rising prosperity that belied the forebodings of John White's "hungry years". The profession of medicine, which he graced, had developed to no lesser degree; Macquarie's convict hospital was now a great public institution; and the Sydney medical school, which was established fifteen years after his death, was the subject of keen discussion.

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#### HYDROCORTISONE ACETATE OINTMENT IN THE TREATMENT OF DERMATOSES.

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HYDROCORTISONE (or Kendall's Compound F) is of special interest because of the growing evidence that it is the principal active steroid secreted by the adrenal cortex *in vivo*. Cortisone given systemically will inhibit an inflammatory response in the skin, but it has no effect when applied locally. Hydrocortisone, on the other hand, has been found to exert anti-inflammatory and antipruritic effects when applied locally, but Smith (1953), using the circulating eosinophile count as a test for the absorption of hydrocortisone in a controlled experiment, was unable to demonstrate this. In the present series there was not even a suggestion of systemic action after topical application.

Sulzberger and Baer (1953-1954) have stated that hydrocortisone acetate ointment offers one of the most important advances in topical dermatological therapy. However, as extravagant claims are often made for new therapeutic agents, it was decided to investigate this statement under Australian conditions. The cases were selected because of their chronicity and lack of response to conventional local therapy. One hundred and ten patients were treated at the Royal Newcastle Hospital with this ointment and were followed up for a period of six months.

The ointments used consisted of a base of paraffin, petrolatum, cholesterol and multiwax containing the active principle of either 25 or 10 milligrammes per gramme of crystalline 17 hydrocortisone 21 acetate. It was decided to investigate the relative efficacy of 2.5% and 1% ointments respectively. This was done when possible by treating the right side with the 2.5% ointment and the left with the 1%. Patients were instructed in the technique of applying an extremely thin smear over the affected areas three times per day. As improvement took place, the applications were made less frequently. An endeavour was made to verify or disprove the statement by Sidi *et alii* (1953) that three applications per week were effective.

It was not possible to estimate the effect of the ointment base in this trial. Sulzberger *et alii* (1953), using different bases, were unable to draw any conclusions as to the possible therapeutic value of the respective bases. They stated, however, "In not one instance have we seen or heard of an allergic dermatitis produced by the topical application of hydrocortisone ointment". In my series three patients were made worse by the ointment, while two other patients, having used up the ointment prescribed, purchased a brand with a different base; their condition was aggravated, but quickly settled down on returning to the original base. In these instances the base must be considered the causative exacerbating factor. Brodie (1954) stated that he has had the condition flare up whilst using the ointment base used in this trial. It was found in this trial that before hydrocortisone acetate ointment therapy was instituted infection had to be rigidly under control. The results of treatment are set out in Table I.

TABLE I.

Disease.	Number of Patients Treated.	Relieved.	Degree of Improvement.		Total Number of Patients Relieved and Improved.
			85%.	Nil.	
Infantile eczema ..	18	8	6	4	14
Dyshidrotic eczema ..	20	13	5	2	18
Lichen simplex chronicus ..	13	7	5	1	12
Generalized neurodermatoses ..	9	2	5	2	7
Besnier's prurigo ..	14	7	4	3	11
Neurodermatitis of the eyelids ..	6	4	2	—	6
Rosacea ..	5	—	—	5	—
Seborrhoeic dermatitis ..	3	—	—	3	—
Pruritus ani et vulvae ..	9	5	2	2	7
Drug eruption ..	2	2	—	—	2
Contact dermatitis ..	8	8	—	—	8
Morphea ..	1	—	—	1	—
Lichen planus ..	1	—	—	1	—
Psoriasis ..	1	—	—	1	—
Totals ..	110	56	29	25	85

In the above series of 110 miscellaneous cases, relief was obtained in 56 (51%), improvement in 29 (26%) and no improvement in 25 (23%). Relief was somewhat more rapid with 2.5% as compared with 1% ointment, but most patients were of the opinion that the 1% was as effective. I could not confirm the statement made by Sidi *et alii* (1953) that two or three applications per week were sufficient. I considered that the ointment had to be applied three times per day. In many cases improvement was noticed within twenty-four hours, whilst subjective relief was obtained in seventy-two hours. Mackinson and Wells (1954) state that, in spite of suppression of symptoms, withdrawal of hydrocortisone acetate ointment is followed by relapse in most chronic cases. This was my experience.

The ointment was found most useful in the treatment of the neurodermatoses and the exudative skin diseases. In dyshidrotic eczema the conditions relieved were of fifteen years', five years' and three each of two years' duration. The results were most gratifying in the treatment of infantile eczema. The ointment has opened up a new era in the therapy of this disease, but it was found that any infection had to be controlled with routine therapy before commencing. The average duration of the cases treated was four months.

Perhaps the most dramatic results were seen in Besnier's prurigo. The condition was relieved after sixteen years, fifteen years, eleven years, nine years and three years respectively, whilst in one case of three years' duration it was aggravated. In lichen simplex chronicus seven patients were relieved, five improved and one was made worse. Of the patients relieved, one obtained relief after eleven years, one after ten years and four after two years.

The results were not as satisfactory in the generalized neurodermatoses. Only two patients were relieved, five



were improved, and in two instances there was no improvement.

In neurodermatitis of the eyelids, relief was obtained in one case of twenty years' duration, during which time many forms of therapy had been carried out. In the acute contact dermatoses relief was rapid and all patients were relieved. In the intractable cases of *pruritus ani et vulvae* the itch was quickly eased. One patient was made worse. In roseacea and seborrhoeic dermatitis it was thought that the results would be dramatic, but after initial improvement the patients reverted to their original condition.

#### Conclusions.

In selected cases hydrocortisone acetate ointment is a valuable weapon in the relief of subjective signs and symptoms. However, it is not a dermatological cure-all. In chronic cases its use is but treating the outward, visible signs of a constitutional stress; the cure of the disease consists in the control of the stress. The ointment facilitates treatment in many cases by the control of itch, thus lessening the tendency to scratch and so allowing the patient to obtain more rest.

#### Summary.

One hundred and ten selected patients have been treated with hydrocortisone acetate ointment. The results are discussed. The patients have been followed over a period of six months.

#### Acknowledgement.

The hydrocortisone acetate ointment was supplied by the Upjohn Company, England.

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### A "NEW" FAMILY BLOOD GROUP ANTIGEN AND ANTIBODY (By) OF RARE OCCURRENCE.

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THE extensive literature on the human blood groups, particularly on Rh, has impressed on most people today that blood grouping and compatibility testing should be specialist tasks within the hospital, and should not be delegated to a ward sister or to any person who may be partly trained in this type of laboratory work. To these remarks may be added that indiscriminate requests for transfusions of blood should at all times be avoided, because, while blood is essentially life-giving, it contains many antigens not necessarily possessed by the patient, who may become sensitized and immunized, with the subsequent production of antibodies. The presence of such atypical antibodies in the circulation may render a woman of child-bearing age incapable of producing a viable infant, or in other cases may render it extremely difficult to find for either male or female compatible blood needed in an emergency.

The classical ABO blood groups were first established owing to the general observation some fifty years ago that

blood samples from different individuals when mixed showed no changes in some cases, but clumped or agglutinated in others. The late Dr. Karl Landsteiner's name was associated with all the major blood group discoveries until his death in 1943. Some blood groups—for example, M-N and P—were discovered as the result of planned experimental injections of human blood into animals, while the Rh blood group was detected after the injection

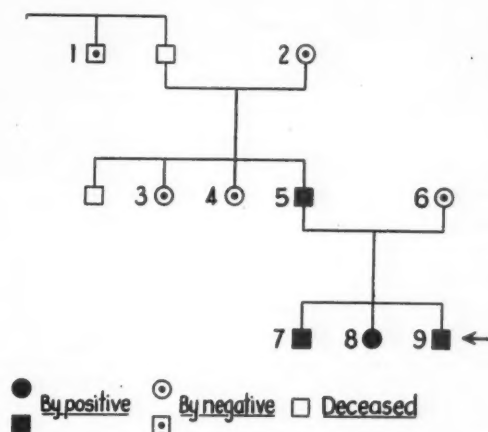


FIGURE 1.  
Family tree showing the Batty (By) antigen.

of Rhesus monkey blood into guinea-pigs or rabbits, and the reagent thus prepared, after suitable adsorptions, was shown to agglutinate about 85% of human blood samples from white individuals. The discovery of the Rh blood groups opened up wide and important horizons of great medical importance, and the impetus given to this field of research has not lessened during the past decade. Other blood groups of general distribution in the population reported since 1946, and of varying clinical importance, have been the following: Lewis (Le), Lutheran (Lu), Kell (K), Duffy (Fy), Kidd (Jk), and Jay (Tj). In all cases they have been discovered by examination of the patient's serum prior to blood transfusion, after a blood transfusion reaction, or after the birth of an infant affected, or possibly affected, with hemolytic disease.

In addition, a number of family or rare blood group systems have been discovered, most of which have been detected by finding an atypical antibody in maternal serum, produced as the result of iso-immunization in pregnancy. In two instances blood transfusions were recorded as a possible contributing cause, and in two other cases the antibodies found were most likely of natural occurrence. The names and some details of the rare or family blood groups are shown in Table I.

Brief reviews of the various blood group systems discovered to date have been published by Race and Sanger (1950), by Levine (1951), by Wiener (1954), and by Levine (1954). The purpose of the present communication is to report the discovery of a "new" family or rare blood group system, associated with the Batty family, who have permitted us to use their name for the new blood group. The antigen will be referred to as By and the antibody as anti-By.

#### Materials and Methods.

Mrs. G.A.B., who was known to be Rh-positive, was delivered of her fourth infant at the Queen Victoria Hospital, Launceston, on November 16, 1953. Because of yellow liquor and yellow vernix the cord blood was sent to one of us (S.O.M.W.) for the Coombs (anti-globulin) test (Coombs, Mourant and Race, 1945).

TABLE I.  
Rare or Family Blood Groups.

Antigen.	Authors.	Antigenic Stimulus.	Number of Random Blood Samples "Negative".	Proportion of Familial Blood Samples "Positive".	Result of Tests for Exclusion versus Anti-By Serum.
—	Wiener (1942). Wiener and Brancato (1953).	None stated, but was male blood donor.	50 500	1 of 4	
Levay .. .. .	Callender and Race (1946).	Transfusion.	350	3 of 7	Negative.
Graydon (Gr) .. .	Graydon (1946).	None.	191	5 of 8	Negative.
Jobbins .. .	Gilbey (1947).	Pregnancy.	120	6 of 10	*
Miltnerberger (Mi*) ..	Levine <i>et alii</i> (1951).	Pregnancy.	425	4 of 10	Negative.
Becker .. .	Elbel and Prokop (1951).	Pregnancy.	272	3 of 6	Negative.
Ven .. .	Van Loghem and Van der Hart (1952).	Pregnancy.	170	3 of 5	Negative.
Wright (Wr*) .. .	Holman (1953).	Pregnancy.	1004	5 of 10	Negative.
Berrens (Be*) .. .	Davidsohn <i>et alii</i> (1953).	Transfusion and pregnancy.	448	5 of 9	Negative.
Cavaliere (Ca) .. .	Wiener and Brancato (1953)	Pregnancy.	48 (Rh-negative samples)	4 of 7	Negative.
Diego .. .	Levine <i>et alii</i> (1954).	Pregnancy.	200	(Only husband tested)	Negative.
Verwey .. .	Van Loghem (1954).	—	—	—	Negative.
Romunde .. .	Van Loghem (1954)	—	—	—	Negative.
Brugman .. .	Van Loghem (1954).	—	—	—	Negative.
Batty (By) .. .	Present investigation.	Pregnancy.	500	4 of 8	Positive.

\* The Batty antigen was tested with the original and uncontrolled Jobbins serum in Australia, with negative results. It is not known if the result is significant as the Jobbins family could not be located in 1954 to check the old serum sample in England. The antigens E<sup>w</sup> and u have also been excluded by Race and Sanger in tests with anti-By serum.

#### Results and Discussion.

##### Tests on Cord Blood, and the Baby's Subsequent Progress.

The cord blood was found to give a strongly positive Coombs reaction in less than one minute, which was not expected, because of the Rh-positive status of the mother. The baby was normal, and was said to show no more than a possible trace of jaundice, but even this was doubtful. The collected evidence, which will not be given here, suggests that the baby remained unaffected, although its erythrocytes were sensitized by an atypical antibody. It appeared a normal baby when examined subsequently, and its progress was satisfactory.

##### Results of Tests with Mrs. B.'s Serum.

The foregoing observations prompted a fuller investigation of Mrs. B.'s serum<sup>1</sup> with the use of blood samples from her husband and her children, and also a panel of selected blood samples. (In such cases the red cells of the husband are often the key to problems of this nature, and they should be called for whenever possible.)

The following findings were obtained: (i) The husband's cells and those of two older children could be sensitized by Mrs. B.'s serum when the indirect Coombs test was used. (ii) No cell samples from a selected panel gave any trace of reaction with the antibody, and these findings suggested a family antigen, or one of rare occurrence in the population. (iii) The antibody titre, which was low at confinement, reached a peak of one in 40 twelve days after delivery, and showed no change during the next thirty days. (iv) Cell suspensions in glucose-citrate solution (Simmons, Graydon, Semple and Taylor, 1951), or in 25% human albumin versus the patient's serum serially diluted with saline or with normal group AB serum (Henry and Simmons, 1946; Simmons, 1949) failed to show any evidence of agglutination. (v) Tests made with 500 blood samples from white Australians, of which 286 were of group O and

214 were of group A, versus Mrs. B.'s serum by the use of the anti-globulin test, gave entirely negative results. Although 500 is not a large series, it does suggest that if the By antigen occurs in the general population, it has a very low frequency. (vi) Tests made with 24 blood samples from Australian aborigines of north-west Western Australia by the same technique also gave negative results.

##### Blood Group Tests on the Batty Family.

Blood samples were obtained from other members of the Batty family and were tested for eight blood group systems, and also with anti-By serum by the anti-globulin test. The results obtained are shown in Table II.

The By antigen was demonstrated in four of eight members of the family. It was unfortunate that the paternal grandfather had died, because the By antigen must have been inherited from him. The deceased man's brother (Mr. E.E.B.) failed to show the By antigen, which again was unfortunate, because he possessed several sons and a number of grandchildren, all of whom live near the Melbourne laboratory. Mr. G.A.B. and his children, who possess the antigen, live in Tasmania in a country area, and this has rendered the collection of blood samples difficult. The Batty family tree is shown in Figure I and the key numbers used correspond with those applied to Table II. It is of passing interest that one member possesses the K antigen and five possess the Lu antigen. The results shown in Table II do not suggest any apparent relationship between the By antigen and the ABO, M-N-S, Rh, P, Le, Fy, K and Lu blood group systems.

##### Lability of By Antigen.

The By antigen is not labile, as it has been readily demonstrated by the anti-globulin technique in sterile 10% blood samples stored for 215 days in glucose-citrate solution at 5° C.

##### Exclusion Tests with Other Rare Blood Antigens.

Wet or freeze-dried anti-By serum was sent by air mail to all research workers who are shown in our records as

<sup>1</sup>Dr. D. P. Churton, of the Red Cross Blood Transfusion Service at Launceston, collected a blood donation from Mrs. Batty for this investigation.

TABLE II.  
The Batty Family Blood Groups.

Number. <sup>1</sup>	Name.	Blood Groups. <sup>2</sup>								
		By.	A B O.	M-N-S.	Rh.	P.	Le <sup>a</sup> .	Fy <sup>a</sup> .	K.	Lu <sup>a</sup> .
1	Mr. E.E.B. Paternal grandfather (deceased) <sup>3</sup>	—	O	Nss	Rh <sub>1</sub> Rh <sub>2</sub>	+	—	+	—	+
2	Mrs. L.M.B.	—	O	MNS	Rh <sub>1</sub> rh	+	—	+	—	—
3	Miss L.E.B.	—	O	MNS	Rh <sub>1</sub> rh	+	+	+	+	+
4	Miss A.M.B.	—	O	MNS	Rh <sub>1</sub> rh	+	+	+	+	—
5	Mr. G.A.B.	+	O	Nss	rh rh	+	—	+	—	+
6	Mrs. G.A.B.	+	A <sub>1</sub>	MNS	Rh <sub>1</sub> Rh <sub>2</sub>	+	+	+	—	—
7	Terence B. (five years)	+	O	Nss	Rh <sub>1</sub> rh	+	+	—	—	+
8	Helen B. (two years)	+	A <sub>1</sub>	MNss	Rh <sub>1</sub> rh	+	+	+	—	—
9	Baby B. (one month)	+	O	MNS	Rh <sub>1</sub> rh	+	—	+	—	+

<sup>1</sup> Numbered according to family tree shown in Figure 1.

<sup>2</sup> All nine individuals gave negative results with anti-rh<sup>w</sup> (C<sup>w</sup>) testing serum.

<sup>3</sup> The By antigen must have been inherited from the deceased paternal grandfather.

having described rare blood antigens. The aim was to determine whether the By antigen did, in fact, correspond with any known blood antigen. The dried and wet serum samples had been carefully checked for their anti-By activity before being sent, and further, as a control on the conditions encountered during transport, a sample of anti-K with an anti-globulin titre one-half that of anti-By was included with the wet samples sent. A report on the activity of anti-K was asked for, and each worker's report indicated no change in titre. It would seem fair to conclude that anti-By was also fully active when tested overseas against the local rare blood antigens.

It will be observed (Table I) that in nearly every case reported exclusion was obtained, which indicates no doubt that large numbers of such antigens exist. An unsolved problem in immunology is why the patient's antibody-forming mechanism selects sometimes only one foreign antigen against which to produce an antibody, when it is presented with many foreign antigens from which selections could be made.

Dunsford (1953) states that a paper had been written describing a new blood antigen and antibody, but the data collapsed when it was found that cells thought to be group O were actually of subgroup A<sub>4</sub>. He made the following recommendations: (i) that so-called family or private blood groups be tested with group O serum; (ii) that group O serum is an essential reagent in A B O grouping; (iii) that the racial origins of the individuals be considered before a new blood antigen and antibody are described.

Chown and Lewis (1953) found what they thought to be a private or family antigen and antibody in two Indians and their family, and not in 794 other North American Indians. When the antibody was tested with the blood cells of Caucasians, it was shown to be anti-Kell (K), and not a rare blood antigen. The K antigen had been introduced by racial admixture. It should be noted that while the practice in England and in the United States of America in general has been to use only group A and group B serum for A B O blood grouping, it has been the accepted practice in Australia, wisely instituted by the Commonwealth Laboratories and the Red Cross Blood Transfusion Service nearly twenty years ago, that selected high titre group O serum must always be issued and used as a control with selected group A and group B sera. In the past, personal recommendations by one of us (R.T.S.) to individual American and English workers on this point have not been accepted. For instance, it was suggested by Melbourne consultants that group O serum was an essential control for correct A B O grouping, and that its use should be specified in the report on medico-legal blood group tests as prepared by Davidsohn, Levine and Wiener (1952); but the recommendation was not accepted. Dunsford on an earlier occasion had also been advised of the Australian practice. Stratton (1954) issued a warning that in the diagnosis of rare blood-group antigens false positive

results due to polyagglutinability of the red cells should be considered. Polyagglutinability is a rare condition in which the person's erythrocytes, while not usually agglutinated by their own serum, are agglutinated by other normal sera of the homologous A B O group. Stratton referred to some 18 cases in which polyagglutinable cells had been demonstrated.

To the foregoing warnings might be added that in our opinion no claims for new blood group antigens should be made or accepted unless the hereditary nature of the antigen had been adequately proved.

It is considered that the findings and other data presented briefly in this paper justify the recommendations made in the opening paragraph.

#### Summary.

1. A new family blood group antigen and antibody (By) of rare occurrence has been found, and technical data in support of the claim are presented. Four of eight members of the family concerned possess the antigen.
2. Brief mention is made of 10 major blood group systems of varying clinical importance, and 15 rare or family blood groups have been tabulated.
3. It is suggested that many such blood antigens exist, and that undoubtedly blood is individual, as was postulated many years ago. The general data presented in the paper are used to support two recommendations: (a) that blood grouping and compatibility tests should be specialist tasks within the hospital; (b) that indiscriminate requests for blood transfusion should be avoided, for while blood is life-giving, it is also potentially dangerous. The question should be asked: "Is blood transfusion really essential to the patient?"

#### Acknowledgements.

We are most grateful to Miss V. Casey for her excellent technical assistance, to Dr. Rachel Jakobowicz of the Red Cross Blood Transfusion Service (Victorian Division) for supplying 500 blood samples from voluntary donors, to overseas research workers who excluded "By" from the antigens described by them, and finally to all members of the Batty family who generously cooperated with us to make this investigation possible.

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## Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"A Textbook of Physiology", edited by John F. Fulton, M.D., with the collaboration of Donald H. Barron, William D. Blake, John R. Brobeck, George R. Cowgill, Paul F. Fenton, Thomas R. Forbes, Samuel Gelfan, David I. Hitchcock, Hebbel E. Hoff, David P. C. Lloyd, Theodore C. Ruch and Jane A. Russell, Seventeenth Edition; 1955. Philadelphia and London: W. B. Saunders Company, Melbourne: W. Ramsay (Surgical), Limited. 10" x 6½", pp. 1318, with 600 illustrations. Price: £6 8s. 3d.

This book was first published in 1905; to this edition there are 30 contributors.

"Current Therapy, 1955: Latest Approved Methods of Treatment for the Practising Physician", edited by Howard F. Conn, M.D.; 1955. Philadelphia and London: W. B. Saunders Company, Melbourne: W. Ramsay (Surgical), Limited. 10½" x 8", pp. 722. Price: £5 4s. 6d.

There are more than 230 contributors to this volume.

"Australia in the War of 1939-1945: Series Four, Civil: Volume 3." "War Economy, 1939-1942", by S. J. Butlin; 1955. Canberra: Australian War Memorial. Obtainable at all book-sellers. 9½" x 6½", pp. 534, with 21 illustrations. Price: 25s.

This is the first of two volumes in the war history series dealing with war economy.

"Ciba Foundation Colloquia on Endocrinology: The Human Adrenal Cortex", edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Margaret P. Cameron, M.A., A.B.L.S., assisted by Joan Etherington; 1955. London: J. and A. Churchill, Limited. Volume VIII. 8" x 5½", pp. 680, with 227 illustrations. Price: 55s.

Produced by the Ciba Foundation administered by British trustees and devoted to the promotion of international cooperation in medical and chemical research.

"Medical Problems of Old Age", by A. N. Exton-Smith, M.A., M.D. (Cantab.), M.R.C.P., with a foreword by The Rt. Hon. Lord Amulree, M.A., M.D., F.R.C.P.; 1955. Bristol: John Wright and Sons, Limited. 8½" x 5½", pp. 342, with 17 illustrations. Price: 30s.

The author has presented "notable aspects of the more important diseases which affect the elderly and the contemporary views concerning their management".

"Stammer is not Nerves (Stammering and Its Cure)", by H. V. Hemery, L.R.A.M.; 1955. London: The School for Functional Speech Disability. 9" x 6", pp. 82, with nine text figures. Price: Not stated.

The author examines the origin and cause of stammering and shows how it may be remedied.

"Diseases of Infancy and Childhood", by Wilfrid Sheldon, C.V.O., M.D. (London), F.R.C.P. (London); Seventh Edition; 1955. London: J. and A. Churchill, Limited. 9" x 6", pp. 816, with 231 illustrations, 18 in colour. Price: 50s.

Written primarily for undergraduate students and doctors in practice and not intended to be competitive with larger works of reference.

"The Diabetic Life: Its Control by Diet and Insulin: A Concise Practical Manual for Practitioners and Patients", by R. D. Lawrence, M.A., M.D., F.R.C.P. (London); Fifteenth Edition; 1955. London: J. and A. Churchill, Limited. 8½" x 5½", pp. 240, with 19 illustrations. Price: 12s. 6d.

This book first saw the light in 1925; it has been translated into French, Dutch, Spanish and Italian.

"Communicable Diseases", by Franklin H. Top, A.B., M.D., M.P.H., F.A.C.P., F.A.A.P., F.A.P.H.A., and collaborators; Third Edition; 1955. St. Louis: The C. V. Mosby Company, Melbourne: W. Ramsay (Surgical), Limited. 8½" x 6", pp. 1208, with 124 illustrations, 15 in colour. Price: £9 14s. 3d.

The collaborators number twenty-four. Intended as a reference book for all who deal with communicable diseases or infestations.

"Christopher's Minor Surgery", edited by Alton Ochsenr, M.D., F.A.C.S., and Michael E. DeBakey, M.D., F.A.C.S.; Seventh Edition; 1955. Philadelphia and London: W. B. Saunders Company, Melbourne: W. Ramsay (Surgical), Limited. 9½" x 7", pp. 564, with 251 illustrations. Price: £4 5s. 6d.

The book is divided into eight parts, each dealing with a separate system or region; there are 21 contributors.

"British Obstetric and Gynaecological Practice"; 1955. London: William Heinemann (Medical Books), Limited. "Obstetrics", edited by Eardley Holland, M.D. (London), F.R.C.P., F.R.C.S., F.R.C.O.G. 10" x 7½", pp. 1180, with 395 illustrations. Price: 115s. "Gynaecology", edited by Aleck Bourne, M.A., M.B., B.Ch. (Cantab.), F.R.C.S., F.R.C.O.G. 10" x 7½", pp. 854, with 363 illustrations. Price: 95s.

These are companion volumes which means that they can be purchased separately. There are 21 contributors to the volume on gynaecology and 38 to that on obstetrics.

"Outlines of Enzyme Chemistry", by J. B. Neilands and Paul K. Stumpf, with a chapter on the Synthesis of Enzymes by Roger Y. Stanier; 1955. New York: John Wiley and Sons, Incorporated. London: Chapman and Hall, Limited. 9½" x 6", pp. 326, with about 70 illustrations. Price: \$6.50.

Written for beginners and non-specialists.

"Outline of Law in Australia", by John Baalman; Second Edition; 1955. Sydney: The Law Book Company of Australasia Proprietary, Limited. 8½" x 5½", pp. 310. Price: 25s.

The first edition was published in 1946.

"Analytical Cytology: Methods for Studying Cellular Form and Function", edited by Robert C. Mellors, M.D., Ph.D., with a foreword by Francis O. Schmitt, Ph.D.; 1955. New York: The Blakiston Division, McGraw-Hill Book Company, Incorporated. 9" x 6½", pp. 462, with 130 illustrations. Price: \$15.00.

The author has tried to bring together some of the contributions of physics and chemistry to the study and the analysis of cellular structure and function.



## The Medical Journal of Australia

SATURDAY, JULY 9, 1955.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

### THE CONGRESS IN AUGUST: A LAST REMINDER.

The time has come to give a last reminder to members of the medical profession throughout Australia of the Ninth Session of the Australasian Medical Congress (British Medical Association), which will be held at Sydney from August 20 to 27, 1955. The reminder is coloured by sadness, for it follows hard upon the announcement of the sudden death of Sir Archibald Collins, D.S.O., M.C., who was President-Elect of the session. Sir Archibald Collins had worked hard to make the Ninth Session a success; he had not spared himself, in spite of coronary warnings which appeared from time to time. Only a few days before his death, when he was recovering from a coronary crisis, he remarked that he had never felt better in his life. In our announcement of his death we stated that he would not consider resignation of the presidency of the Congress or of the presidency of the Federal Council, because of his feeling of obligation that he had to carry out the work which the medical profession had entrusted to him. A leading member of the New South Wales Branch has stated that the most outstanding quality displayed by Collins was his integrity; to this we may add his sense of duty and responsibility. The Congress will go on; but it will lack the particular lustre which Collins would have shed upon it. The President of Congress is appointed by the Federal Council on the nomination of the Branch of the State in which the Congress is being held. The New South Wales Branch Council has met and

has nominated Sir Charles Blackburn for the position of President, and the Vice-President of the Federal Council, Dr. H. C. Colville, who in the absence of the President is clothed with plenary powers, has approved of the appointment. Sir Charles Blackburn has accepted the position. He earns the appreciation and gratitude of the Australian medical profession, for it is no simple matter to take the place at the last moment of one who has taken an active part all along in the necessary arrangement of detail and in the general planning of procedure. He will have the loyal and sympathetic support of all those who are charged with the carrying out of the arrangements already made. We have no doubt that he will also receive the acclaim of members of Congress when the opening day arrives.

The need for the present reminder may be summed up in the fact that the opening day of Congress is only a few weeks off. The enrolment so far has not been heavy, and many more applications for membership are expected. At functions of this kind there are generally a number of applications which arrive at the last moment; this last-minute rush should not take place, the chief reason being that it throws an unnecessary strain on members of the Congress office staff who have to cope with the applications. To enrol a member of Congress is not a simple single operation; it consists of much more than entering the member's name in a book or on a card in a card system. Care has to be taken, *inter alia*, that the necessary invitations to formal Congress functions are issued to him; not infrequently the latecomers are those who are most liable to complain if something happens to go wrong. The ladies' committees have been at work for many months arranging functions, outings and entertainments, not only for the wives of the members, but for members themselves when they are not attending Congress sessions. It is only fair that consideration should be shown for those who give so much time and take so much trouble over these activities. The arrangements so far made indicate that the registration and reception of members of Congress will work smoothly and that intending members, especially those from States other than New South Wales, will have no trouble.

Reference must be made to the work of the sections. The names of the sections have been published, together with the names of their presidents and secretaries. A comprehensive programme has been arranged; in fact, the programme appears to be so full that great care will have to be exercised by presidents and secretaries of sections if those who have announced their intention of contributing papers and whose papers have been accepted are to have the opportunity to present them. Contributors of papers have been invited to send copies of their contributions to the secretaries of the sections. It is to be hoped, however, that contributors will not read their papers, but that they will rather talk to them—the reading of a paper which may, as we all know, become monotonous, is not nearly so stimulating as a short talk given about its subject matter. At the forthcoming session of Congress the arrangements for the reporting of discussions will differ from those that have been made at previous sessions. On this occasion there will be no reporters to take notes of what any contributors to discussions may say. The MEDICAL JOURNAL OF AUSTRALIA will have in each section a liaison officer or representative who will make a note of

those who take part in discussion and will be present to receive contributions from speakers of remarks which they have made and which they desire to see included in the official record of the discussion. Every speaker will therefore be required to write a short account of what he has said. The older method of reporting, though effective up to a point, was perhaps a little cumbersome, and it is hoped that the method now to be used will be satisfactory. This will at least remove the possibility that speakers in discussion may be misrepresented. The chairman at each session will be invited to announce the name of the journal's representative so that no one will be in doubt about what should be done. Those who present papers are reminded that one copy of their contribution is intended for the Editor of THE MEDICAL JOURNAL OF AUSTRALIA. The Editor will not be obliged to publish any papers which are presented at Congress. He will choose those which appear suitable for publication in the journal, and those not desired by him may then be offered by authors to any other medium of publication which they may choose. This means that the Editor of THE MEDICAL JOURNAL OF AUSTRALIA has the first refusal of all papers read at Congress. It must, of course, be clearly understood that immediately after Congress has ended we shall publish what are known as "Congress Numbers"; these really form the "proceedings" of the session. In these numbers will appear a précis of every paper read together with the discussion which has been handed in by speakers in each section. Those preparing papers have been invited to write a summary of their own paper. Should they fail to do this, a summary will be prepared in the office of the journal. Authors of papers are earnestly requested to prepare their own summaries, if for no other reason than that they will be able to determine for themselves what points should be included. If, after this explanation, an author of a paper is in any doubt, he is invited to write to the Editor of the journal and to explain his difficulty.

This reminder of the forthcoming Congress would not be complete if no reference was made to what we may call the other activities of Congress. A first-rate trade exhibition has been arranged, and members of Congress will do well to arrange their Congress programmes so that ample time is left for visits to this exhibition. Representatives of trading houses will be present to answer questions and to explain the use of any preparations or instruments which may be on display. The Trade Exhibition is an important part of any session of Congress. It is comparable with THE MEDICAL JOURNAL OF AUSTRALIA ADVERTISER, which is published with every issue of the journal, and should be treated with the amount of care that should be displayed each week in regard to the "Advertiser". The pathological and scientific museum is part of Congress and should not be forgotten. A considerable amount of care is taken in its preparation, and to many members it will be almost as instructive as some of the sectional meetings and discussions. Covering interest of a different kind is the Hobbies Exhibition. The appeal here is twofold—first of all to members who have hobbies that they should display the products of their industry, and secondly to members of Congress that they take the trouble to visit the exhibition and see what some of their colleagues do with their spare time. They may, indeed, find useful suggestions for ways in which they can use their own spare time.

At the risk of being burdensome, we must conclude this reminder with a restatement of the names and addresses of the Local State Secretaries. The Local Secretary in New South Wales is Dr. M. S. Alexander, 135 Macquarie Street, Sydney; in Victoria the Local Secretary is Dr. C. H. Dickson, Medical Society Hall, 426 Albert Street, East Melbourne; in South Australia, Dr. L. Bonnin, 63 Palmer Place, North Adelaide; in Western Australia, Dr. S. E. Craig, 7 Malcolm Street, Perth; in Queensland, Dr. D. A. Henderson, Ballow Chambers, Wickham Terrace, Brisbane; and in Tasmania, Dr. K. S. Millingen, 178 Macquarie Street, Hobart. The final message to members of the Association in the several States is: Make up your mind at once that you will come to Congress and do not delay in your application for membership, otherwise you may experience difficulty in securing accommodation.

#### THE ASIAN-PACIFIC TUBERCULOSIS CONFERENCE.

As already announced in this journal, the Asian-Pacific Tuberculosis Conference will be held at Sydney from August 15 to 20, 1955. The conference is being arranged by the National Association for the Prevention of Tuberculosis in Australia ("NAPTA"); the Department of External Affairs of the Commonwealth is standing behind NAPTA in the matter. The Department is sponsoring visits from all countries concerned in the Colombo Plan—Ceylon, India, Pakistan, Indonesia, Burma, Thailand, Vietnam, Cambodia, the Philippines, and the following British territories: Sarawak, British North Borneo, Singapore, Malaya and Brunei. As many as three representatives may be sent from each of these countries, and the total is expected to be in the neighbourhood of thirty-five. It is hoped that representatives from the South Pacific Commission will attend, but they will not be sponsored by the Department of External Affairs; in other words, they will have to pay their own travelling expenses. Visitors will be present from New Zealand and from the United Kingdom. Among the latter will be Dr. Andrew Moorland, of London. Representatives will be present from the health departments in the several States, from the Federal Council of the British Medical Association in Australia, and from the State branches of NAPTA. Representatives from the World Health Organization will attend, and among them will be Dr. Johannes Holm, who is the Chief of the Tuberculosis Division of WHO. The scientific sessions will be held at the University of Sydney in the Economics "A" Lecture Theatre. Among the subjects for discussion will be the following: (a) "The Use of Antibiotics in Tuberculosis", (b) "The Role of BCG and Tuberculin Testing in the Prevention of Tuberculosis", (c) "The Control of Tuberculosis in Unprotected Peoples", and (d) "The Role of the Team in the Prevention of Tuberculosis". The general emphasis of the conference will be on the prevention of tuberculous infection. At each of the sessions a chairman will be appointed and a paper will be presented by a selected individual. It is intended that the papers will be prepared beforehand and circulated amongst those present, so that an intelligent discussion may take place. We understand that three papers are being prepared by the World Health Organization; no decision has yet been made about

the fourth. As far as possible, those taking part will be representative of the various countries taking part in the conference. A fifth meeting of the conference will take place, although it is not officially a part of the conference. Members will attend the meeting of the Section of Thoracic Surgery of the Royal Australasian College of Surgeons, which is holding its annual meeting in Sydney during the week in which the conference will be held.

This conference will be an additional attraction for those medical men and women who propose to visit Sydney at the end of August. As a matter of fact, the fortnight will be crowded with medical events. The Federal Council of the British Medical Association in Australia hopes to admit to honorary membership of the Australasian Medical Congress (British Medical Association), which will be held from August 20 to 27, overseas delegates who will be attending the tuberculosis conference. This Asian-Pacific Tuberculosis Conference cannot be a large gathering, and we understand that for those not appointed official delegates to the conference a registration fee will be payable. This does not apply to overseas visitors. Further information about the conference can be obtained from Dr. Bruce Geddes at the Royal North Shore Hospital of Sydney, St. Leonards, New South Wales.

## Current Comment.

### NON-ESSENTIAL BONE.

WHILE it is always desirable to aim at restoration of anatomical structure after trauma, there are often occasions when to do so is impossible, and sometimes when it has been done, the functional result is unsatisfactory. Since there are portions of the bony skeleton whose absence in the adult seems to make little or no difference to function, the assessment of a number of them made by G. J. Curry and S. N. Lyttle,<sup>1</sup> in an article entitled "Expendable Bone", is a very useful aid to the surgeon concerned with trauma. These authors describe their experiences with eleven of the sixteen parts of the skeleton originally described in 1947 by Gurd as "surplus". They have, for instance, excised the lateral end of the clavicle and relieved the pain of osteoarthritis or the inconvenience of dislocation without loss of function, and so have gone on to excise it when there is complete separation of the acromio-clavicular joint or a comminuted fracture of the clavicle extending with the joint, in preference to attempting anatomical reconstruction, with subsequent lessening of the period of disability to two to three weeks and obviation of the inevitable final weakness and arthritis. Their only reservation is in the case of women with the conoid and trapezoid ligaments completely torn through, since the resultant high riding of the remaining portion of the clavicle would look ugly when strapless evening gowns are worn—*O tempora, O mores!*

Excision of the medial end of the clavicle when the sterno-clavicular joint is dislocated and the ligaments are badly torn similarly shortens the time of immobilization and results in a trouble-free functioning shoulder, without noticeable deformity. Excision of the head of the humerus may forestall the development of necrosis and ankylosis, but is to be avoided if at all possible, since it invariably leaves an unstable shoulder joint incapable of strenuous use without severe pain. The authors recommend the insertion of a prosthesis when excision cannot be avoided. Restoration of severely comminuted fractures of the elbow is usually difficult and often results in ankylosis, and the choice between excision and a flail

joint on the one hand or reconstruction and ankylosis on the other should be made early—if the patient is a manual labourer the latter is preferable. However, the condyles of the humerus, the olecranon process and the head of the radius are expendable. Since the distal articulation of the ulna is small and contributes little to the stability of the wrist, the distal fifth of the ulna is completely expendable, and Curry and Lyttle recommend excision of the distal fragment when a comminuted fracture extends into the joint, to eliminate future traumatic arthritis, and also when the ulnar fragment blocks reduction of the radius, or when shortening of the radius causes deviation. In these circumstances they have had excellent results with no functional disability, and the period of disability is usually no more than two weeks.

Aseptic necrosis of a dislocated semilunar is common, and often early excision saves much trouble; the loss will never be noticed. Loss of the patella, however, weakens extension and causes an unsightly flattening, but the late results of extensive reconstruction of small fragments, especially if the articular surface remains rough, are rarely satisfactory, and excision of all fragments smaller than 40% of the total articular surface is advisable. The head of the fibula can be excised without interference with knee function, and excision will cause less loss of time than waiting for union. The distal 25% to 50% of the medial malleolus can also be spared; and if it is broken off and cannot be correctly replaced without pinning or grafting, it is easier to remove it and to reattach the deltoid ligament, once again with much saving of time.

The case histories cited by these authors, and the radiographs they present, are very convincing; their argument is that shortening of the period of disability to the time that it takes soft tissues to heal, together with elimination of late complications, without loss of function, is well worth while. The saving in physiotherapy and equipment could also have been mentioned. So long as indiscriminate sacrifice of skeletal parts is not wantonly undertaken without due consideration of the principles involved, their argument will be accepted as sound.

### LITTLE STROKES.

EVEN important cerebral thromboses may be missed or discounted because they occur in so-called "silent" areas. Walter C. Alvarez<sup>2</sup> states, however, that one of the commonest diseases of man is the one in which, over the course of ten or twenty years, a person is gradually pulled down by dozens or scores of thromboses of little arteries in the brain, many of which are never recognized or are diagnosed only in retrospect. Alvarez has written on this subject before, but now he has some new and definite information to impart, based on observations of some hundreds of cases. Because sometimes the progress of the condition can be delayed, because some of the more bizarre results of little strokes can be the basis of serious mistakes in diagnosis or treatment, and because when changes in character are the only noticeable effects, recognition of the cause may clarify many difficult situations, Alvarez is concerned with the need for early diagnosis. This is often missed because the patient does not give a full history, and the physician sees only one incident in the series, fails to recognize it for what it is, and does not search for other similar instances. Suddenness is the best key—changes in mentality, character or ability, deterioration of memory, slowing up, loss of zest or interests, changes in writing or speaking, pain in limbs, chest or abdomen, or vague paræsthesiæ, may be traced to one particular point of time—inquiry may reveal that a dizzy spell, momentary weakness or clumsiness of a limb, temporary loss of balance, a short spell of mental confusion or aphasia, a sudden attack of nausea or vomiting without dietetic reason, or an unexplained fall, was associated with the abrupt onset of the apparently dissociated con-

<sup>1</sup>Am. J. Surg., April, 1955.

<sup>2</sup>J.A.M.A., April 2, 1955.



dition; or possibly "he woke up one morning a changed man" is indicative of a little stroke during sleep. Certainly, when the clinician is faced with one such episode, if inquiry reveals that there had been a similar, even though unrelated one, some time before, then the condition can be diagnosed without hesitation. The blood pressure is a poor guide, since hypertension is not necessarily a contributory factor—the lesion is a thrombosis, more likely to occur when the blood pressure is low. It is not unlikely that the mental changes which often follow a severe attack of coronary thrombosis may be due to small cerebral thromboses which happened during the circulatory depression of the major catastrophe. Many little strokes, if actually noticed as entities, may be hastily diagnosed as "heart attacks", especially if there is, as a result of the stroke, some thoracic pain. If the pain is abdominal, and persistent, cancer may be suspected; if it is around a joint, arthritis may be diagnosed, especially if the interference with the nerves concerned is great enough to produce slight weakness and trophic changes. Sometimes the stroke is recognizable as one, but so transient that it is passed off as a vascular "spasm"; an incident like this, in the history, would be most significant. Chronic cerebral atherosclerosis is possibly a useful way to describe the basic condition behind the little strokes. Alvarez suggests that reduction of excessive weight and a diet with a low cholesterol content are the best prophylactic measures. A daily dose of three grains of thyroid substance has been used to reduce the amount of large-molecule cholesterol in the blood. Shock and oedema can be minimized, if the condition is promptly diagnosed, by the injection of cortisone. Iodo-brassid ("Lipiodine") often helps toward a greater degree of recovery.

If Alvarez's exposition of the little strokes can help to explain the sudden loss of business drive and ability in an executive, the sudden onset of slovenliness in a heretofore dapper person, or sudden infidelity in a hitherto happy family man, then much trouble and unhappiness may be avoided.

#### SPONTANEOUS AURICULAR FIBRILLATION.

It is eight years since Myron Prinzmetal<sup>1</sup> and his colleagues presented their high-speed colour cinematographs of induced auricular flutter in dogs, together with direct-lead electrocardiographs, and disproved Lewis's theory of circus movement. This work was discussed in detail in a leading article in this journal on April 26, 1952. Now recent advances in cardiac surgery have made it possible to make similar investigations on man. Patients with intractable valvular disease and auricular fibrillation benefit greatly from the operation of mitral commissurotomy, which necessitates exposure of the auricles. M. Prinzmetal, L. Rakita, J.-L. Borduas, E. Flamm and A. Goldman<sup>2</sup> have, on 15 occasions, moved their equipment into the operating theatre during these operations, and have each time carried out a fifteen-minute investigation of the exposed, fibrillating auricles. In four patients direct leads were recorded from each auricle simultaneously; in three, the two auricles beat at different rates, which state is incompatible with the occurrence of circus movements of any size. The recorded waves also indicated that the impulse might travel away from the electrode during some beats, towards it during others, and past it during still others, but on no occasion did an impulse pass the electrode and return to it during the same beat, as it should if a circus movement occurred. Two types of waves, large and small, were recorded in all instances, and in seven patients the large waves, occurring at a rate of 250 to 400 per minute, were irregular in timing, size and shape.

In these patients the motion of the left auricular appendix was limited because of congestion due to mitral stenosis, but by pushing down the pulmonary artery the right auricle could be clearly brought into view, and

motion pictures were taken of six patients. In the right auricular appendix more or less organized contraction waves were observed, corresponding to the large waves in the electrocardiogram. There were also rapid, heterorhythmic, weak contractions and dilatations of minute muscle segments corresponding to the small waves in the electrocardiogram. Nothing resembling a circus movement was seen.

So circus movement is finally and unequivocally out, and no doubt Sir Thomas Lewis would be as pleased as anyone. He expounded the circus movement theory, despite its anomalies, because it afforded a working basis for clinical practice; we may be sure that, faced with Prinzmetal's magnificent evidence, he would have eagerly adapted the ectopic focus theory to his teachings.

#### MICROAGGREGATION OF ERYTHROCYTES AFTER MYOCARDIAL INFARCTION.

THE method of observing blood flow in the vessels of the bulbar conjunctiva, devised by Knisely, Elliot and Bloch in 1945, and reported in an article entitled "Sludged Blood in Traumatic Shock", has been used by Edward H. Bloch<sup>3</sup> to evaluate the effects of anticoagulant therapy in acute myocardial infarction. In this paper, "In Vitro Microscopic Observations of the Circulating Blood in Acute Myocardial Infarction", Bloch states that even when an anticoagulant has reduced the prothrombin concentration to well below 50%, microaggregation of erythrocytes is still to be observed in the blood. Knisely and his colleagues showed that trauma was followed, locally, by a binding together of erythrocytes by a fibrin-like substance into minute aggregations; where thrombosis completely blocked the flow of blood, no aggregations developed distal to the block, but where any flow was maintained through a damaged vessel, the emergent erythrocytes were aggregated into clumps which passed into the general circulation and could be seen when they reached the conjunctival arterioles, where they measurably impeded the flow through arterioles, capillaries and venules. Bloch describes how such aggregations appear in the conjunctival arterioles after the incidence of myocardial infarction, very early when the patient is acutely ill and shocked, but not until after forty-eight hours later when the damage is less extensive and the patient's circulation had been previously unimpaired. In the smaller venules there appear effects secondary to the hindrance to the circulation by these clumps, and ascribable to local anoxia. Usually, within a fortnight these conditions settle down, concurrently with the clinical improvement in the patient's condition and with no relationship to the reduced prothrombin content of the patient's serum (which is a measure of the amount of anticoagulant administered).

Bloch deduces from these observations that the microaggregation of erythrocytes is not a part of the original thrombosing process which caused the infarction, but that the aggregations are produced by the action of substances released from hypoxic or degenerating cardiac muscle; but once they have formed it is beyond the power of an anticoagulant to break them up, and only the presence of a sufficient concentration of anticoagulant *in situ* at the moment of release of the aggregating substance could prevent the formation of aggregations.

Bloch emphasizes that this microaggregation of erythrocytes is distinct from, though allied to, the normal clotting mechanism of blood, and he refers to "some substance or substances of unknown composition" as being released from injured tissue and initiating the aggregating process—apparently not thromboplastin, but an analogous substance. In any case, it is most desirable that formation of these aggregations be prevented if possible—when they block peripheral capillaries and venules they offer increased resistance to an already embarrassed circulation, and when they block the capillaries and venules of the

<sup>1</sup> *Am. J. Med.*, October, 1951.

<sup>2</sup> *J.A.M.A.*, April, 1955.

<sup>3</sup> *Am. J. Med. Sc.*, March, 1955.

heart they obviously must increase and prolong the damage caused by the original infarction. Bloch adopts the attitude that, notwithstanding the observed benefits of anticoagulant therapy in myocardial infarction, the drugs at present in use do not adequately prevent microaggregation, and that others which will do so should be looked for. If his theory of microaggregation formation is correct, then anticoagulants active in the normal clotting mechanism are unlikely to be really effective in the aggregation cycle, and his request for new drugs is justifiable. On the other hand Bloch's observation, that only the presence of sufficient anticoagulant at the site of injury could prevent the formation of microaggregations, makes it obvious, although he does not state this specifically, that the new drugs he wants are in the nature of solvents, rather than anticoagulants.

#### SUBACUTE BACTERIAL ENDOCARDITIS.

LITTLE help has hitherto been available on the subject of the treatment of those patients with subacute bacterial endocarditis whose blood cultures produce no organisms. I. A. Feder<sup>1</sup> emphasizes the need for early, intensive and prolonged treatment of this disease, and gives an instance of the way in which delay in the institution of treatment because of failure to secure results from blood cultures can permit irreparable damage to develop. Feder considers that to wait until blood for culture has been drawn twice on the day of admission and once daily for three more days is long enough. If no organism is recovered after these five attempts, he commences continuous intravenous drip therapy with 10,000,000 units of penicillin in one litre of 5% glucose in water (to which 10 milligrammes of heparin have been added to prevent thrombosis at the site of injection) every twenty-four hours, together with two or three grammes of streptomycin or dihydrostreptomycin, given intramuscularly in divided doses, daily. If this regime is going to be effective, the temperature should become normal after forty-eight to seventy-two hours; if it does not, the dose of penicillin is doubled and "Benemid" added to increase its blood level. If within a further twenty-four hours the temperature has not at least fallen appreciably, the two drugs are discontinued and the other antibiotics, with triple sulphonamides, are tried in large doses until some effect is produced. If the temperature falls only partly, indicating partial resistance, other antibiotics and sulphonamides are added. As soon as an effective combination has been found, the treatment at that level is continued for at least five weeks. With chlortetracycline and oxytetracycline now available for parenteral use, it would seem hardly possible not to secure good results with such a vigorous attack.

#### VISUAL DISTURBANCES FOLLOWING ACUTE BLOOD LOSS.

VISUAL disturbances following blood loss have been known since the days of Hippocrates, but interest attaches to a recent review of the condition by J. E. Alfano and K. L. Roper.<sup>2</sup> In addition to the review they report a case which they investigated fully in respect of the peripheral blood picture; finally at autopsy they were able to examine histologically the optic pathways. It is pointed out that the source of the hæmorrhage is practically always from the bowel, with uterine bleeding second in importance. In an analysis of 100 cases, H. Wilbrand and A. Saenger (quoted by Alfano and Roper) found that 41% were due to gastro-intestinal hæmorrhage, 33% to uterine hæmorrhage and the remainder to blood-letting, nose bleeding,

trauma, hæmoptysis and renal hæmorrhage. Fortunately the incidence of severe visual disturbance after blood loss is not high. The greatest incidence is in young adults and middle-aged subjects; most cases occur within the first week after the hæmorrhage.

The ætiology of the visual disturbance has been the most controversial and interesting feature, and various theories have been put forward. The existence of a toxæmia wherein toxic products exert an action on retinal cells which have been rendered susceptible by blood loss is the most favoured theory. Spasm of the arterial walls due to diminished oxygen supply has been suggested as the immediate cause of blindness. The pupils may be dilated and fixed, dilated and with sluggish reaction, or dilated and with normal reaction. The ophthalmoscopic picture also varies. The fundi may be normal, or there may be pallor of the disk and attenuation of the vessels, or there may be œdema of the disk and œdema of the surrounding retina. The prognosis, as W. Zentmayer<sup>3</sup> has shown, varies with the time of onset of visual disturbance after the onset of the hæmorrhage. According to Singer (quoted by Alfano and Roper), 46.4% of patients show no improvement, 38.4% get better and 13.9% return to normal. As to the pathological changes, M. Goerlitz<sup>2</sup> found œdema of the optic disk and adjacent nerve fibres and dilatation of the physiological cup in a patient who became blind after hæmatemesis. Alfano and Roper found no pathological changes in the intracranial portion of the optic nerves, the optic chiasma and the optic tracts.

#### BUCKETS OF BLOOD.

ONE medical lesson which emerges from the Korean war is the value of enormous quantities of blood in the management of battle casualties. In the later phases of the war conditions were more or less static, forward hospitals were able to remain in fixed positions for relatively long periods and to develop their ancillary services to full advantage, and helicopter evacuation permitted many critically wounded men to reach the hospitals alive, whereas if conditions had been less favourable they would have died of hæmorrhage and shock long before they could be given any hospital treatment. In reporting on this type of casualty, C. P. Artz, J. M. Howard, J. Sako, A. W. Bronwell and T. Prentice<sup>3</sup> classify the patients according to the amount of blood required for resuscitation in the first twenty-four hours after injury; this amount serves as a gross measure of total blood loss and, apart from wounds of vital organs, as a measure of the severity of the injury. Omitting clinical details, we find that in one group of patients 61 were given five to ten pints of blood, and one died; 50 were given 10 to 15 pints, and eight died; 12 were given 15 to 20 pints, and three died; while 15 were given 20 to 56 pints, and eight died. Another group of 89 received fifteen pints or more, with a total for the group of 2135 pints of O-type blood in the first twenty-four hours; 56% survived.

In the same issue of the journal, C. Spencer and R. W. Greive, reporting on the management of arterial injuries, mention in passing that pre-operative resuscitation required from six to ten pints of blood, while R. Scott and W. H. Crosby state that eleven "moderately and severely wounded" men received from six to sixteen pints of type O stored whole blood.

There can be no gainsaying that most of these patients would have died before reaching hospital had circumstances been less favourable, but there was nothing fortuitous about the organization which could supply blood in bucketful quantities to complete the life-saving job in such a high percentage—and this organization operated, not in a large centre with ample facilities, but in close proximity to the front line.

<sup>1</sup> *Am. J. Med.*, April, 1955.

<sup>2</sup> *Am. J. Ophthalm.*, December, 1954.

<sup>3</sup> *J.A.M.A.*, September, 1952.

<sup>2</sup> *Klin. Monatsbl. Augenh.*, Vol. 64, 1920.

<sup>2</sup> *Ann. Surg.*, March, 1955.

## Abstracts from Medical Literature.

### BACTERIOLOGY AND IMMUNOLOGY.

#### Fraction of Tubercle Bacilli Possessing Primary Toxicity.

J. K. SPITZNAGEL AND R. J. DUBOS (*J. Exper. Med.*, March, 1955) have isolated a fraction of tubercle bacilli possessing primary toxicity. Phenol-killed bacilli of various strains were extracted with monochlorobenzene and petrol ether, always at temperatures below 50° C. Injections of the purified substance (called Fraction 7) would not induce tuberculin allergy in guinea-pigs, but an amount of five microgrammes injected intradermally produced severe local reaction. In white mice 20 microgrammes caused loss of weight and muscle tone and death in nine days. Similar properties were exhibited whether the fraction was prepared from virulent, attenuated, bovine or human strains, but those from virulent cultures were quantitatively more toxic, although this may have been associated with the method of preparation.

#### Myxoma Virus in One-Day-Old Mice.

C. H. ANDREWS AND S. HABISJADES (*Brit. J. Exper. Path.*, February, 1955) have achieved the propagation of myxoma virus in one-day-old mice. Hitherto the only animal used has been the rabbit or the chick embryo. The authors state that the virus is not pathogenic for the mouse. Its presence is demonstrated by inoculating lightly centrifuged emulsions of mouse brain into the rabbit skin and observing local lesions. High titres were found up to  $10^{-4}$  from three to seven days after intradermal inoculation. There were technical difficulties and sometimes virus was lost, but up to 30 passages were made successfully in the infant mouse brain without loss of pathogenicity for the rabbit.

#### Virulence of Tubercle Bacilli and Cord Factor in Murine Tuberculosis.

H. BLOCH AND H. NOLL (*Brit. J. Exper. Path.*, February, 1955) report studies on the virulence of tubercle bacilli and the effect of cord factor on murine tuberculosis. They state that since there have been purified preparations of the substance known as cord factor, identified by using infra-red spectrum and optical rotation analysis, their identity is well known. The present experiments show the effect of the factor on experimental tuberculosis in mice. The substance inoculated in doses of 0.01 milligramme into normal mice killed them within six weeks if five injections were given daily; but if it was given at intervals of more than eight days, the mice survived. Investigation with decreasing amounts showed a point at which no toxicity could be shown. When a single injection of cord factor was injected into mice suffering from tuberculosis, their survival time was

shortened; and if their organs are cultured quantitatively, they can be shown to contain more viable bacilli than controls. Other fractions of tubercle bacilli, wax fractions or mycolic acid had not this effect, and cord factor had no effect on staphylococcal, streptococcal or pneumococcal infections in mice. Animals infected with tuberculosis and cord factor do not show the therapeutic effect of isoniazid shown by animals inoculated with tubercle bacilli alone.

#### Influenza B in Boston.

M. FINLAND AND M. W. BARNES (*Am. J. Hyg.*, January, 1955) have made isolations of virus and serological studies in patients, including a study of antigenic differences against influenza B viruses, isolated in Boston from 1945 to 1952. Nine isolations of virus were recovered from patients and acute and convalescent sera from 30 patients in 1952. There was a rise in antibody titre to Lee, Bon and the epidemic strain in adult sera, but some sera from children reacted best with the local strain. No differences could be shown between strains grown in the egg by means of convalescent sera. Immune rabbit sera, however, could distinguish between the epidemic strain and other B strains. Cross neutralization tests showed variations between the recent and standard strains of B virus. The authors interpret the results as suggesting a continuous variation in antigenic pattern of strains of influenza virus isolated from patients in different years.

#### Proteus Infections in Hospital.

P. STORY (*J. Path. & Bact.*, July, 1954) has studied *Proteus* infections in hospital from 1951 to 1953, and attempted to determine the role of the organism in the patient. Some sera were tested for antibodies by slide agglutination. In identifying similar strains of the organism the author used the Dienes phenomenon—that is, the ability of two strains swarming on a plate to mingle if they are similar, and to form a line of demarcation if they are different, especially as regards their flagellar antigens. The organism was associated with pus formation in 78% of cases, and in 59% of cases it was associated with other bacteria. The results of slide agglutination against their own organism were positive for 12 of 47 sera tested. Rectal swabbings were taken from patients and tested to see if the organism was also present in the intestine; this was frequently so, and of 147 pairs of cultures tested, 122 were identical as shown by the Dienes phenomenon. Antibiotic sensitivities were estimated; 89% were sensitive to chloramphenicol, 79% to streptomycin, and only 16% to penicillin and 3% to "Aureomycin" or "Terramycin". It was concluded that in the majority of instances observed the patients' wounds were infected from their own intestinal tract.

#### Absence of Desoxyribonucleic Acid from Chemically Induced Inclusions.

M. WOLMAN (*J. Path. & Bact.*, July, 1954) comments on the absence of desoxyribonucleic acid from some chemically induced cytoplasmic and intranuclear inclusions, with reference to a

special type of false-positive staining by Feulgen's nuclear technique. Guinea-pigs and rats were injected subcutaneously with suspensions of aluminium hydroxide or bismuth salicylate in oil, and rats and mice were fed with food heavily laced with basic lead acetate. Animals were sacrificed at varying periods of time up to nine weeks. Portions of some of the local lesions and liver and kidney sections were stained by hematoxylin and eosin and by Feulgen's method for desoxyribonucleic acid. In the local lesions due to aluminium hydroxide, intranuclear inclusions were found which could not be identified in Feulgen-stained preparations. Basophilic staining masses could be found in rat liver and kidney three days or more after bismuth salicylate injections; they stained deeply with hematoxylin or methylene blue, but never by Feulgen's method. In the lead acetate group both rats and mice showed intranuclear inclusions after four weeks' feeding; while most of them did not stain by Feulgen's method, some appeared reddish and were studied further. It was suggested that carbonyl groups responsible for the reaction might exist in some lipid compound, and not be those in desoxyribonucleic acid. Sections were treated with lipid solvents such as pyridin alcohol-ether or chloroform methanol before being treated with Schiff's reagent, and the staining of the inclusions was completely inhibited. The author believes that these inclusion bodies differ fundamentally from those produced in viral infections.

#### A Serological Study of *Neisseria Gonorrhoeae*.

J. F. WILSON (*J. Path. & Bact.*, October, 1954) has attempted a serological study of *Neisseria gonorrhoeae* in the face of recognized difficulties with strains known to be autoagglutinable and with others known to be inagglutinable which, however, could absorb agglutinins from an antiserum. A series of primary isolations were made on chocolate agar and grown in 8% carbon dioxide. Suspensions for agglutination were prepared only from smooth strains and used immediately, as many suspensions autoagglutinated on standing. Later it was found that if suspensions were heated to 100° C. for thirty minutes and formalinized, they remained stable for six weeks. Rabbit antisera were produced by the inoculation of heat-treated organisms, and agglutination tests were carried out at 50° C. for four hours. Complement fixation tests were performed with protein extracts of twenty-hour smooth cultures and three minimal hemolytic doses of complement. Some strains not agglutinable on first isolation became so after subculture, while others became agglutinable if the suspension was heated to 100° C. for thirty minutes. All these variations made it advisable to use agglutinin absorption tests to search for a typing method; four stable strains were used for the production of antisera, four absorbed sera were prepared which could recognize four single antigens, and experiments with one strain showed loss or gain of a single antigen during subculture. Antigens called A and B were present in practically all cultures, with or without



others, and so appear to be group antigens, while the others (C to G) appear to be type specific. The author discusses in detail the technical difficulties associated with the work.

## HYGIENE.

### Influence of Water Availability on Shigella Prevalence.

A. HOLLISTER, M. BECK, A. GITTELSON AND E. HEMPHILL (*Am. J. Pub. Health*, March, 1955) have carried out a survey which may have a particular application in Australia. The authors state that water has been considered classically as a vehicle for the transmission of certain pathogens to man, but their survey of dysentery in migratory labour camps in California suggests that water as a diluent may reduce the incidence of dysentery. The present study has shown that prevalence of dysentery was associated with availability of water for personal hygiene. Other measured environmental variables did not account for the differences seen. This observation has been independently confirmed by similar findings in a fixed rural and semi-rural population in southern Georgia. The finding implies that control of dysentery infections may be significantly improved through a single practical modification of the environment—provision of easily accessible water for personal hygiene. Proof of causative association requires critical quantitative determination of the effect, if any, of a known increase in water availability for personal hygiene upon a suitable population's experience with dysentery organisms. The authors suggest that workers in the environmental sanitation field might well accept this challenge, since the potential knowledge to be gained along the lines indicated could have wide application in many places around the world.

### Routine Immunization of Children with Triple Vaccine.

J. IPSEN AND H. BOWEN (*Am. J. Pub. Health*, March, 1955) have investigated the results of routine immunization against diphtheria, tetanus and pertussis in Massachusetts. They state that evaluation of an immunizing agent is built up from (i) animal tests, (ii) tests on human volunteers, (iii) field assays, and (iv) use in public health. The first two are usually carried out in the laboratory. Field trials have been made to evaluate pertussis vaccine, but not tetanus or diphtheria toxoid. In evaluating the public health effect of these three antigens the authors studied reported disease incidence. Serological studies were also carried out on blood samples sent for Wassermann tests from adults of both sexes and in different age groups. Blood samples were also studied from first to third grade children included in recent poliomyelitis vaccine trials. The authors state that there has been a marked decrease in the incidence of diphtheria in children, considered to be mainly due to immunization. A less marked decrease in the incidence in adults is considered to be due to the

almost complete disappearance of the reservoir in children. Without this reservoir adult immunity is not stimulated, and diphtheria will become mainly a problem of adults. There has been a marked decrease in the incidence of tetanus among children with a less marked decrease among adults in the twenty to thirty-nine years age group. A decline in the incidence of pertussis has occurred in children in the under ten years age group. As is now the case with diphtheria pertussis may soon become largely an adult problem. Serological studies show that active artificial immunization of children has produced a high rate of immunity against diphtheria in the lower age groups. There is, however, a high susceptibility rate among adults considered to be due to the absence of natural immunization from the natural reservoir previously present in children. With regard to tetanus, children and males of the thirty to forty years age group have a high rate of immunity. This is due to the artificial immunization of children and of male adults immunized while in the armed services. Adult females have a low rate of immunity. The authors consider that serological epidemiology can be used to give a direct measure of a population's potential resistance to a given disease. It can also be used to evaluate programmes of artificial immunization and to indicate where further immunization is required. This is a new and promising application of serological epidemiology in public health practice.

### Safeguarding the Health of the Industrial Worker.

H. E. STOKINGER (*Pub. Health Rep.*, January, 1955), who is a member of the Committee on Threshold Limits of the American Conference of Government Hygienists, gives details of how knowledge of the effects of different concentrations of a toxic substance in the environment can be used to provide for safe working conditions. He discusses four aspects: (a) threshold limits for concentrations of injurious agents in workroom air, (b) threshold limits of concentrations of injurious agents or their metabolic products in biological fluid, (c) screen tests of persons for early signs of injury from exposure to hazardous agents, (d) prophylactic substances and antidotes for injurious agents. A list has been prepared of threshold limit values for natural minerals and oils and chemical substances in the form of dust, fume, mist, vapour or gas in common use in industry. Each value represents the maximum atmospheric concentration to which workers may be exposed day after day without injury to health or without irritant or discomforting effects. The list is reviewed annually and now includes a list of tentative values for substances still under investigation. The author discusses some of the values given in the list. In regard to the value of 0.15 milligramme per cubic metre for lead, he states that this value is unrealistically severe when applied to the more insoluble lead salts, and probably too lenient if applied to certain organic lead compounds. He then refers to biological threshold limits. These are values that refer to the

greatest permissible content of an air contaminant or its metabolic derivatives in the body fluids, usually blood or urine, of a person exposed to these contaminants. These values are of use if repeated regular determinations are made and if they are used to supplement air concentration determinations. A list of values is given for some substances in blood and urine. Pretoxiosis tests detect metabolic changes caused by toxic substances before serious injury has developed. Such tests for carbon bisulphide and vanadium are mentioned. The urinary coproporphyrin screening test for lead poisoning is discussed. Brief reference is made to the use of the calcium salt of ethylene diamine tetraacetic acid in the elimination of lead and other toxic metals from the body, to BAL in arsenic poisoning, to aurin tricarboxylic acid in beryllium poisoning, to vitamin B<sub>12</sub> in cyanide poisoning, to the prophylactic value of ascorbic acid for a number of toxic substances, and to the use of cystine and methionine in aiding the liver to detoxify methylchloride and dichloroethane. Methods of air sampling are discussed. Advantages of the Millipore membrane and molecular filters are outlined. Various automatic measuring instruments depending on photoelectric measurements and the use of the electron microscope as an electron diffracting instrument are mentioned.

### School Lunch Practices in the United States.

C. C. WILSON AND E. W. WOOD (*Am. J. Pub. Health*, February, 1955) estimate that one out of every three school children in the United States has his midday meal at school. Outbreaks of typhoid, salmonella infection, dysentery and staphylococcal and chemical food poisoning have been traced to schools. To obtain further information the authors sent out questionnaires and received replies from 646 schools. Other information was obtained by personal interviews. The survey covered 795 schools with an average attendance of 680 pupils. Food was served from a cafeteria in 90% of schools. Running hot water was available in 94% of schools, 46% of schools had dish-washing machines, 19% had three-compartment sinks, 31% used one-compartment or two-compartment sinks or dish-pans for dish-washing. Only 58% provided covers or other means of protecting food displays. Two schools had ice-chests, 90% of the rest had mechanical refrigerators, but only 36% of these were fitted with thermometers. Approximately half of the schools had insect control problems, and approximately a third had rodent control problems. Handwashing before eating was required in a little more than half of the schools. In 50 schools, children helped with the preparation of food, in 368 they helped with its serving, in 524 they helped with the cleaning up afterwards, and in 518 they were given instruction in sanitary food handling. The authors consider that this survey indicates the need for periodic sanitary inspection of school lunch rooms and the great importance of health education in schools in relation to food and food handling.

## Clinico-Pathological Conferences.

### A CONFERENCE AT SYDNEY HOSPITAL.

A CLINICO-PATHOLOGICAL CONFERENCE was held at Sydney Hospital on Thursday, February 15, 1955, the medical superintendent, Dr. NORMAN ROSE, in the chair. The principal speaker was Dr. E. M. CORTIS, honorary assistant surgeon at Sydney Hospital.

#### Clinical History.

The following clinical history was presented.

The patient, a storeman, aged forty-seven years, had been well until twelve months before his admission to a medical ward of the hospital. Since then he had noticed progressive weakness, particularly of the legs, and pallor, and had complained of recurrent scalding on micturition. For six months he had been breathless on exertion and anorexic, and during that time he had lost two stone in weight. For three months he had complained of constant dull pain in the right hypochondrium which radiated to the right shoulder and to the left hypochondrium. The pain had no relation to meals, but was made worse by coughing and by drinking beer. Recently he had noticed lower abdominal pain on defecation and had been rather constipated. There was no history of jaundice, oedema or indigestion. He drank one schooner of beer per day, smoked six ounces of tobacco per week and drank twelve cups of tea per day. Investigation of his family history revealed nothing relevant. Examination of the patient revealed that he was a wasted man in no distress. His tongue was coated. He was not jaundiced. His temperature was 98.2° F., his pulse rate 84 per minute and his blood pressure 120 millimetres of mercury, systolic, and 80 millimetres, diastolic. The edge of his liver was palpable five fingers' breadth below the right costal margin; the liver was hard, nodular and not tender. A mass palpable in the left hypochondrium was thought by most observers to be an enlarged spleen. Some slightly enlarged, soft, non-tender lymph glands were present in the axillae and inguinal regions. Rectal examination revealed a moderately enlarged prostate which was not hard or craggy. Sigmoidoscopic examination revealed no abnormality to a distance of 20 centimetres. Physical examination revealed no other abnormality. The urine was normal.

The hemoglobin value was 10.4 grammes per centum. The total leucocyte count was 11,700 per cubic millimetre; the differential count was normal. The serum alkaline phosphatase content was 78.2 King-Armstrong units. The thymol turbidity reading was two units. The serum bilirubin content was 0.6 milligramme per 100 millilitres. The plasma protein content was 6.1 grammes per centum, the albumin content being 3.5 grammes and the globulin content 2.6 grammes per centum. The serum acid phosphatase content was 2.8 King-Armstrong units. The results of Wassermann and Kahn tests on the blood and cerebro-spinal fluid were in all cases negative. The result of the complement deviation test for hydatid was negative. Microscopic examination of the urine revealed very occasional pus cells. Fractional test meal examination showed histamine-fast achlorhydria. No abnormality was seen on chest X-ray examination. Barium meal X-ray examination revealed no lesion in the stomach or duodenum, those organs being displaced to the left by an enlarged liver; there was normal passage of the meal through the colon, and the outlines appeared regular. Inguinal lymph gland biopsy was performed, but the gland presented a normal appearance.

During the following five weeks the patient's condition gradually deteriorated. The abdominal masses remained unchanged; some ascites developed. The temperature remained normal throughout. The patient gradually lapsed into coma and died five weeks after his admission to hospital.

#### Clinical Discussion.

Dr. N. H. ROSE: The speaker today is Dr. Cortis, a surgeon on the staff of the hospital, and I think a great honour has been bestowed on him by asking him to discuss a patient who was admitted to a medical ward and died in a medical ward. It seems to me to be essentially a medical case, but I am certain that Dr. Cortis will interpret the request that he should speak as a warning to be on his guard. I should like to introduce Dr. Cortis.

Dr. E. M. CORTIS: Thank you, Dr. Rose. I think the symptoms can be summarized as constitutional and local. The constitutional symptoms were those of anemia, such as weakness, pallor and breathlessness on exertion, and toxic

symptoms, such as anorexia and loss of weight; the local symptoms were pain in the right hypochondrium passing to the right shoulder and the left hypochondrium, and later pain in the lower part of the abdomen on defecation, scalding on micturition and a tendency to constipation. Dr. Rose, you are not hiding anything, are you—no other symptoms?

Dr. ROSE: I am as ignorant of that as you are!

Dr. CORTIS: Well then, I assume that there is no other symptom, such as hæmaturia or dysphagia.

The essential features of the physical examination were a grossly enlarged liver, which was hard, nodular and not tender, a mass in the left hypochondrium, and an enlarged prostate, which was "not hard or craggy". I thought that if I ran through the differential diagnosis of enlargement of the liver, I should be able at least to mention the diagnosis. We can rule out localized enlargements of the liver, such as hydatid, Riedel's lobe, amebic abscess or hepatoma. Then there are some generalized enlargements which are accompanied by jaundice—toxic or infective hepatitis, cholangitis, pyelophlebitis; we can exclude these. This leaves us with the group of generalized hepatic enlargements without jaundice. These enlargements are either regular or irregular. In cirrhosis of the liver there is a fine nodularity but not the gross irregularity plus enlargement described in these notes. We can exclude the causes of regular enlargement of the liver without jaundice, such as cirrhosis, failing heart, leucemia, rickets and amyloid disease. This leaves us with the causes of irregular enlargement—namely, the coarsely nodular cirrhosis following infective or toxic hepatitis, gummatous, polycystic disease of the liver, primary and secondary carcinoma of the liver and secondary melanoma and sarcoma. I feel that the last group contains the diagnosis. I think the hardness, nodularity and lack of tenderness can mean only one thing, and that is malignancy, either primary or secondary. We can exclude cirrhosis by the fact that the liver would be firm rather than hard. Would you support me there, Dr. Sevier, or criticize that statement?

Dr. J. N. SEVIER: It depends on how you differentiate between firm and hard. A cirrhosis in the shrunken stage can be very hard, but a liver of this size is unlikely to be a cirrhosis of such long standing.

Dr. CORTIS: Gummatous we rule out by the Wassermann and Kahn tests. Polycystic disease would probably be associated with polycystic kidneys, which would be palpable, and there would probably be signs of renal failure.

If it were a secondary sarcoma, I would expect the lungs to be involved, but the result of X-ray examination of the chest was negative, and there is no evidence of any primary site. If it were a melanoma, there would probably be the history of the presence or removal of a primary growth, perhaps many years previously. So I am left with primary or secondary carcinoma of the liver.

Primary carcinoma of the liver is very rare, whether arising from the liver cell or the small bile passages, and it is more likely to be a secondary carcinoma. Its origin is likely to be in the portal system, and I have arranged the sites for the primary carcinoma in the following order of frequency: stomach, colon, esophagus, gall-bladder, pancreas, and then systemic spread from carcinoma of the kidney, prostate, lung, breast *et cetera*. But I feel the primary probably lies somewhere in the portal system.

Next we shall consider the special investigations. The serum alkaline phosphatase content is 78.2 King-Armstrong units. I thought that such a high level would indicate either extensive bone disease or liver dysfunction such as obstructive jaundice or cirrhosis. I wonder whether Dr. Wardlaw would be so kind as to give us a few words on the significance of such a high serum alkaline phosphatase content.

Dr. H. S. H. WARDLAW: One should certainly look for some disturbance in calcium and phosphorus metabolism, as occurs in some generalized bone diseases with increased osteoblastic activity, or for some indication of obstructive jaundice. In this case there is no jaundice. We used to be told that with disease confined to the liver (that is, excluding bone conditions) any figure over 30 King-Armstrong units indicated obstruction. Those figures are no longer accepted, and figures as high as 100 King-Armstrong units have been found in conditions without obstruction and without disturbance of the calcium and phosphate metabolism of the bones. In this case the figure for acid phosphatase is within normal limits, although there is an enlarged prostate. So the high figure for alkaline phosphatase might be associated with some disturbance of the liver or with some generalized disease of bone, but it is obviously not associated with an obstructive condition.

DR. CORTIS: Thank you, Dr. Wardlaw. The serum bilirubin content is normal. What about the plasma protein content, quoted as 6.1 grammes per centum, with albumin 3.5 grammes per centum and globulin 2.6 grammes per centum?

DR. WARDLAW: These figures are for serum and not plasma. The plasma protein figures would be a little higher than that. The albumin figure is low and the globulin figure correspondingly high, which we would expect in this condition. The electrophoretogram was not done: it might have given additional information.

DR. CORTIS: These findings are consistent with liver disorder. Now, the fractional test meal showed histamine-fast achlorhydria. I made further inquiries about this test and was told that there was some mucus present, but there was no indication of the presence or absence of blood or pus or lactic acid. The odour was normal, and there was no starch. I should like to use this in support of my diagnosis of carcinoma of the stomach.

The result of chest X-ray examination was normal, and the barium meal examination showed no lesion in the stomach or duodenum, but these organs were displaced to the left by an enlarged liver. There was normal passage of the meal through the colon, and the outlines appeared regular. Here is a representative film of the stomach and the only film taken of the "follow-through". Usually the duodenum is to the right of the mid-line, but you can see here that it is well over to the left. Besides this displacement no other abnormality can be seen. The findings from inguinal lymph gland biopsy were normal.

I have discussed the possible causes of enlargement of the liver. The other important finding on clinical examination is the mass in the left hypochondrium which was thought by most observers to be an enlarged spleen. The distinction between a spleen and a kidney is important. The spleen usually has a sharp edge and possibly a notch, and there is a little space between the back of the spleen and the sacro-splinalis. It moves well on respiration and is firm in most haemopoietic diseases. A kidney mass is usually kidney-shaped, it can either be moved into the loin or is in the loin already, and it sometimes has a band of colonic resonance over it. But we are not given any further details about the mass, so we can only conjecture. I thought it might be an enlarged spleen, as most observers thought it to be. There might be compression of the splenic vein by secondary deposits in the liver or in the porta hepatis. There are other possible explanations. The mass could be a primary tumour of the stomach, kidney, suprarenal or colon. Or it could be a secondary tumour like a peritoneal plaque from a carcinoma of the stomach or one of the intraperitoneal carcinomas. It could be a renal neoplasm, hydronephrosis or polycystic kidney.

I thought I would discuss the differential diagnosis in the reverse order of frequency. Primary carcinoma of the liver is unlikely because of its rarity. Carcinoma outside the portal system has next to be considered. It could be a carcinoma of the prostate. On physical examination the prostate was enlarged, and it was not hard or craggy, but, of course, that does not rule out the possibility of carcinoma of the prostate by any means. However, the serum acid phosphatase content was normal, and we have no evidence in the history of pains in the back or pelvis, nor do our X-ray films show any bony lesion. If the carcinoma of the prostate had caused such a high serum alkaline phosphatase content from secondary deposits in bone, there would be a high acid phosphatase content. Carcinoma of the prostate is an unlikely possibility.

Neoplasm of the kidney might explain the mass in the left hypochondrium, and it sometimes causes hepatic metastasis. There is no history of haematuria, although sometimes haematuria causes scalding on micturition, which the patient did have. Also he had symptoms suggesting anaemia, and I suppose it is possible that he had passed some blood without noticing it. I therefore put down carcinoma of the kidney as a possibility, but I feel that the primary lesion probably lies somewhere in the portal system.

The oesophagus can be considered. Probably there would be dysphagia, and when the radiologist carried out the barium meal examination, he would be likely to "screen" the patient during swallowing and see the lesion. Do you agree with that, Dr. Grattan-Smith?

DR. P. GRATTAN-SMITH: There could be a carcinoma of the oesophagus present without it showing in a barium meal examination. Observing the patient swallowing a barium bolus would be preferable. Even then a negative report would not rule out the possibility of carcinoma.

DR. CORTIS: I shall include that as another possible primary site. But my favourite sites are the stomach, colon and

pancreas. The only thing about the stomach is that the result of barium meal examination was negative, but an early carcinoma of the stomach may not show up. The radiologist's difficulty is to look at all tangential views of the stomach. Carcinoma near the cardia may escape notice. What is your opinion about that, Dr. Grattan-Smith? Do you think carcinoma of the stomach with large secondary deposits in the liver could escape recognition by the barium meal?

DR. GRATTAN-SMITH: I think so. The liver does obscure the view and make it more difficult.

DR. CORTIS: Another thing in favour of carcinoma of the stomach is achlorhydria and the presence of mucus in the test meal. I thought I would put carcinoma of the stomach as the likely diagnosis.

Now to discuss carcinoma of the colon. The "follow-through" examination was carried out, but if we wanted to rule out carcinoma of the colon we would give a barium enema. And even then there are the well-known difficulties of the splenic and hepatic flexures, and the sigmoid colon, where the shadows overlap even with lateral and oblique views. Thus the "follow-through" examination by no means rules out carcinoma of the colon. The later symptoms would tie up with carcinoma of the colon—you notice lower abdominal pain on defecation and the fact that he had been rather constipated. But I suppose the most likely type and site of carcinoma of the colon causing this picture of anaemia and wasting would be one of the proliferative growths in the caecal region or ascending colon, probably a right-sided growth, a fungating, bleeding, infected mass with the symptoms of haemorrhage and infection rather than of obstruction. Carcinoma of the left side of the colon would probably have caused obstructive symptoms before such enlargement of the liver occurred. Would the barium meal and "follow-through" examination be likely to show up a carcinoma of the caecum?

DR. GRATTAN-SMITH: Again a negative finding would not rule it out. I would prefer a barium enema examination, and even then negative findings are not uncommon.

DR. CORTIS: The last carcinoma of the three likely ones I have to consider is carcinoma of the pancreas. In the absence of jaundice it would probably be in the body or tail.

There are other tests which could be done to investigate a possible carcinoma of the pancreas. Dr. Schultz was keen on testing the stools for steatorrhea and cretatorrhea and for trypsin, having blood glucose curves prepared after both glucose and starch ingestion, and estimating the blood lipase level and the antithrombin titre. I wondered if Dr. Wardlaw could suggest any further tests.

DR. WARDLAW: I would suggest estimating one other pancreatic enzyme, the amylase, in blood.

DR. CORTIS: We do not possess that information. I think the primary lesion probably lies between one of those three, stomach, colon or pancreas. Am I given any other information, Dr. Rose?

DR. ROSE: I think all the information which is available has been presented to you quite honestly and openly, and nothing has been withheld.

DR. CORTIS: One could discuss other investigations which could have been carried out. The faeces could have been tested for occult blood, which, if present, would have suggested carcinoma of the stomach or colon rather than of the pancreas. Blood urea estimation would have been useful. Other tests could have been performed, though it is not always profitable or humane to subject someone with secondary deposits in the liver to exhausting and unpleasant investigations such as gastroscopy, barium enema examination, paracentesis abdominis or even liver biopsy. Those are not justified in such a case, nor is there any reason to perform a laparotomy in the absence of gastric or intestinal obstruction.

So I think the most probable site of the primary carcinoma is the stomach, and secondly the colon, and thirdly the pancreas.

DR. ROSE: This is one of our most difficult cases. I think it can fall into the province of any specialist—the only one we can exclude with any certainty is that of gynaecology—but it does appear as if it could be urological, medical or surgical and so on. Would anyone care to make comments? I would like remarks directed towards any methods which have not been mentioned and which might have helped us to arrive at an accurate diagnosis.

DR. W. BERNES: I think an intravenous pyelogram might have thrown some light on this. A Grawitz tumour of the upper pole of the left kidney is a possibility.



PROFESSOR F. R. MAGAREY: I think the clue to this case lies in the mass in the left hypochondrium. If it were a kidney, then the answer would be quite obvious—primary carcinoma of the kidney with metastases in the liver. I know that metastases from hypernephromas generally appear first of all in the lung, but they do not all behave in such a way. Solitary metastases can appear almost anywhere in the body, and there is no reason to believe that multiple metastases cannot give rise to a liver such as has been described. Absence of hæmaturia is a difficulty in this case. I do not believe that in males massive hæmaturia sufficient to give anaemia could pass unnoticed. Nevertheless, I am certain that quite a big hypernephroma can develop in the absence of any macroscopic hæmaturia.

If this mass in the left hypochondrium is a spleen, then I think we have to consider the problem of primary carcinoma of the liver. Now, I do not agree with the opening speaker that primary carcinoma of the liver is particularly uncommon. We see it not infrequently at autopsy. In fact, comparing it with Grawitz tumours, we find primary carcinoma of the liver more frequently than primary carcinoma of the kidney. But the liver tumour is not so amenable to surgical treatment, so that the autopsy figures are misleading in this respect.

If this case is one of primary carcinoma of the liver, then it is reasonable to postulate some preexisting fibrosis of the liver, for it is extremely rare to find primary carcinoma in the absence of such fibrosis. To support this contention we can suppose this mass in the left hypochondrium to be a spleen. In other words we have a partial picture of cirrhosis of the liver with portal obstruction. Similarly, primary carcinoma of the liver may quite quickly metastasize throughout the liver, giving a large liver with many hard nodules in it, which is quite compatible with what is described here. As this, no doubt, is a difficult case, then I think we would have to mention further possible tumours from which metastases could arise. A suprarenal neuroblastoma is thus a possibility. It is not, as we are sometimes told, confined to children, for they do occasionally occur in the adult. Finally, a carcinoma arising in the pancreas—not in the head, for this would have given rise to obstructive jaundice—but in the body or tail of the pancreas. In the tail of the pancreas a carcinoma could well account for the mass.

To summarize then, I am sure the disease is a carcinoma. I put quite high on the list primary carcinoma of the liver, then secondary carcinoma from somewhere up in the left hypochondrium, kidney, possibly suprarenal or tail of the pancreas. I feel pretty certain, too, that the raised serum alkaline phosphatase content, so extraordinarily raised in the absence of any other changes suggestive of obstructive jaundice or of bone disease, is a red herring, and I refuse to include it in my discussion of the differential diagnosis.

A STUDENT: I feel carcinoma of the lung has been dismissed rather quickly. There are cases where the primary lesion is not seen in the X-ray film, and metastases sometimes are found in the kidney and the adrenal. Even if the mass in the left hypochondrium is a spleen, it may not be so much enlarged as pushed forward by a suprarenal tumour. There being no respiratory symptoms, we would have to assume it is a small primary growth.

As for other causes of splenomegaly, secondary carcinoma is very rare. I remember seeing one in the department of pathology with carcinoma of the tail of the pancreas extending to the spleen, giving a very large spleen. That is a remote possibility.

DR. T. I. ROBERTSON: I take it that Dr. Cortis has excluded the malignant lymphomatous diseases by the biopsy of the inguinal lymph node. I would like to point out that glands from this site are the least satisfactory to select for biopsy.

In this patient, the enlargement of the axillary glands has been glossed over. So often hepatomegaly plus splenomegaly does indicate one of the Hodgkin's group of diseases. In ordinary physical examination few people palpate the occipital, pre-auricular, post-clavicular or internal inguinal glands. The axillary glands were enlarged, and there may have been other glands enlarged also.

Another point is that the pain in the right hypochondrium that this person suffered was increased by drinking beer. It is probably of little significance; but it has been reported, and my own observations confirm it, that deposits of Hodgkin's tissue sometimes cause pain when alcohol is taken. There have been at least three cases I have met with in the past year in which bone pain in patients with Hodgkin's disease has been quite marked after one or two glasses of beer. In two of them X-ray films of the bones were normal. However, the point was proved by deep irradiation abolishing the relationship of pain to alcohol.

In the patient under discussion, I agree that the diagnosis of carcinoma is probably correct, but I think the possibility of lymphoma has been dismissed too quickly.

DR. ROSE: Dr. Robertson, you said you thought there were better glands in the body from which to take a biopsy than the inguinal ones. Which are they?

DR. ROBERTSON: Any gland is better than the inguinal glands. Of course, one examines the glands which appear diseased. If the inguinal glands are the only ones which appear affected, they must be examined. However, when there is a choice, inguinal glands are bad ones to select. The constant small traumata which occur to the feet and legs over the years and the constant movement of the legs in walking tend to make them more fibrotic and a doubtful histological picture hard to interpret.

DR. SEVIER: Further to what Dr. Robertson has said, I think it might have been helpful had supraclavicular gland biopsy been carried out, as it is sometimes revealing in early carcinoma of the lung or carcinoma of the stomach. I think, too, that with this histamine-fast achlorhydria and an abnormal blood picture which was not followed up, further information could have been derived if a sternal marrow biopsy had been performed as well. In the light of these glandular enlargements and possible splenomegaly—although I would suspect from the radiographic picture that the mass in the left hypochondrium might have been liver—I feel that supraclavicular gland biopsy and sternal marrow biopsy would have been helpful. This seems a case in point where an abnormal blood picture is found and not followed up. We do not know whether the anaemia was microcytic, macrocytic, hypochromic or hyperchromic. If it were a hyperchromic macrocytic anaemia with a histamine-fast achlorhydria, the probability of it being caused by carcinoma of the stomach would be further increased.

#### Autopsy Report.

The following autopsy report was given by DR. A. A. PALMER, and microscopic slides were shown.

The body was that of a middle-aged male showing obvious wasting (weight 110 pounds, height five feet eleven inches). Apart from some congestion and oedema of both lungs no abnormality was found in the thoracic organs.

*Peritoneum.*—Twenty ounces of straw-coloured fluid were present in the peritoneal cavity.

*Stomach.*—A malignant ulcer 3.7 centimetres by 2.7 centimetres was present on the greater curvature 2.0 centimetres from the pylorus. The base of the ulcer was hard and sloughing; the rest of the stomach was not obviously involved. Two enlarged hard prepyloric lymph nodes were present, and there were enlarged hard paraortic lymph nodes.

*Liver.*—Two hundred and four ounces (normal 50 to 60 ounces). The liver was grossly enlarged and hard; the surface was irregular and some of the projections were umbilicated. The cut surface showed much more newgrowth than liver parenchyma.

There were no significant abnormalities in the other abdominal viscera.

#### Microscopic Examination.

*Stomach.*—Adenocarcinoma is present in the floor and margins of the ulcer extending to the subserous coat. In the floor of the ulcer there are still many bundles of muscle; this feature and the situation on the greater curvature make it unlikely that the growth originated in a chronic peptic ulcer.

*Regional Lymph Nodes.*—Metastatic adenocarcinoma is present.

*Liver.*—There is extensive metastatic adenocarcinoma with much necrosis.

#### Diagnosis.

Carcinoma of the stomach with massive metastases in the liver and local and paraortic lymph node metastases.

#### Pathological Discussion.

DR. ROSE: Is there anything further you would like to add, Dr. Whyte, to what has been said this afternoon.

DR. H. M. WHYTE: Only that I think this is a very important disease from which about 2000 people die each year in Australia. It is the top-ranking cancer causing death in Australia and other countries. In one series of cases the diagnosis was made most frequently by barium meal

examination, which showed a lesion in the stomach in over 90% of cases, and achlorhydria, as was present in this case, occurred in about 50% of cases. Even when the diagnosis is made, the outlook is extremely gloomy. In the same series of close on 300 cases, 60% were deemed operable so far as laparotomy was concerned, and only half of these proceeded to resection of the stomach. I think that in 25% of these cases the patient had died within one year of diagnosis, and in 19 out of 20 of the cases (95%) the patient had died within five years. Only about 5% survived a five-year follow-up period. It is interesting, too, that in this and other series of patients with carcinoma of the stomach, as with carcinoma of the breast, it was the ones with the longest history that survived the longest time. Those with the shorter duration of symptoms seem to have had a more severe and progressive type of carcinoma and perished sooner.

There are other interesting features about this disease, to my mind. One is that the incidence in cities is much greater than the incidence in rural areas. There are geographical variations, too; for example, in the rural parts of north Wales the rate for cancer of the stomach is very much greater than for the general population of England and Wales. There are genetic aspects, too. It is known from follow-up studies that cancer of the stomach occurs much more frequently than you would expect among the relatives of people who have died of this disease; and, as another genetic point, it has been shown that people with blood group A are much more liable to develop this cancer than people of other blood groups.

DR. ROSE: That concludes the meeting for today. The next meeting will be held as usual on the third Tuesday of next month.

## British Medical Association News.

### SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held at the St. George Hospital, Kogarah, on November 18, 1954. The meeting took the form of a series of clinical demonstrations by members of the medical and surgical staff of the hospital.

#### Acute Porphyria.

DR. J. C. ENGLISH presented a male patient, aged forty-eight years, who had been admitted to hospital in September, 1954, with a complaint that three days previously he had awoken with slight epigastric pain which steadily increased during the day. The pain was across the upper part of the abdomen and extended round the right side to the centre of the back. The patient also complained of frequency of micturition present for three days and vomiting for one day. Previously, in 1953, he had been investigated for a space-occupying intracranial brain lesion, but no evidence was found of that. He was a member of Alcoholics Anonymous. On examination at the hospital the patient was seen to be writhing in pain, yet the pain did not wax or wane. He was seen to adopt the knee-chest position and to scratch himself vigorously. His abdomen was slightly tender in the right iliac fossa. Examination of his central nervous system revealed non-reacting irregular pupils, loss of sensation in the upper parts of both legs and diminished knee jerks. His urine was of a red and coppery colour. His manner became strange and he caused a good deal of disturbance. The diagnosis was in doubt until the results of urine tests showed a positive finding for increased amounts of porphyrins. He was treated by the intravenous administration of "Friscol" to relieve smooth muscle spasm which was the cause of some of the pain. His condition improved with relief of pain and his central nervous system abnormalities regressed.

#### Complicated Rheumatic Carditis.

Dr. English then showed a boy, aged fourteen years, who had been admitted to hospital in July, 1954, complaining of pain in the left shoulder present for twelve hours and pain in the left side and chest present for one week. He had had a sore throat seven weeks previously and a rash on the arms for one week. He had suffered from rheumatic fever at the age of nine years and at the time had been kept in bed for three months. He had then been quite well until the development of the sore throat, which had been accompanied by swelling of the ankles and pain in the left

shoulder. That episode lasted for one week. He was then well until the development of his present symptoms. As well as the pain in the shoulder and chest, he had pain in the ankles and knees, general malaise and dyspnoea when he lay flat in bed. On examination he was found to be a pale, ill-looking boy with a regular pulse and a blood pressure of 115 millimetres of mercury, systolic, and 65 millimetres, diastolic. The apex beat was visible in the sixth left intercostal space, five inches from the mid-line. A friction rub could be heard in the sternal region. A loud systolic murmur could be heard at the mitral region, but there was no diastolic murmur. Triple rhythm was present at the pulmonary region. No oedema of the ankles was detected. Examination of the chest revealed the presence of râles at both lung bases with some evidence of consolidation at the base of the left lung. X-ray examination revealed dullness in the costo-phrenic angle on the left side, but owing to the gross enlargement of the heart it was impossible to determine whether this was due to consolidation. The joints were not hot or swollen. The patient's temperature was 102° F. on his admission to hospital. He was treated with "Aureomycin" for two weeks, with "Disprin" and with cortisone in an initial dose of 200 milligrammes daily, followed by 100 milligrammes daily. Dr. English said that the boy's general condition had improved considerably. He both felt and looked well. He no longer had dyspnoea or pain in the chest, and he had had no joint pain other than two episodes, both lasting approximately forty-eight hours, when he had complained of pain in the left shoulder and the left side of the chest. No friction rub was audible. However, despite the apparent improvement, the pulse rate had remained increased, there had been frequent outbreaks of erythema on the forearm, rheumatic nodules were present on the hand, and the blood sedimentation rate had remained raised, although it fluctuated considerably. An electrocardiographic examination in August, 1954, had produced an abnormal record, with sinus tachycardia, right axis shift, flattened T waves in leads I, aVL, V<sub>5</sub> and V<sub>6</sub>, indicating myocardial damage.

#### Agranulocytosis.

Dr. English's third patient was a man, aged sixty-one years, who had been admitted to hospital in August, 1954. He had developed severe pain in the back between the shoulder blades one month previously. At the same time he had had a severe head cold. He had suffered from two attacks of hæmoptysis and epistaxis, and had lost one stone in weight during the month. At the time of his admission to hospital he was feeling much better and his pain had gone. Examination of his past history revealed that he had had a ruptured duodenal ulcer three years previously and had suffered from mumps three months before his admission to hospital. On examination, he was found to be a healthy-looking man with clubbing of the fingers. His trachea was in the mid-line and his chest moved evenly on both sides. Percussion resonance was slightly diminished over the upper lobes of both lungs and bronchial breathing could be heard at the apex of the left lung. Other examination findings were negative. At a blood count one week prior to his admission to hospital he was found to have an erythrocyte count of 3,800,000 per cubic millimetre, a hæmoglobin value of 11 grammes per centum, a colour index of 0.9 and a leucocyte count of 3300 per cubic millimetre, of which the neutrophile cells made up only 3%. X-ray examination of the chest revealed an area of consolidation in the upper lobe of the left lung which, it was thought, might be either inflammatory or neoplastic. X-ray examination with a barium meal revealed a small duodenal ulcer towards the apex of the duodenal bulb. Prior to his admission to hospital the patient had been treated with sulphadiazine and "Chloromycetin". On his admission to hospital he said that he felt much better. His pain had gone and he was gaining in weight. Penicillin and streptomycin were given prophylactically. The number of polymorphonuclear cells remained depressed, never rising above 5%. "Pentnucleotide" was given for one week in a dosage of five millilitres by intramuscular injection four times a day. Further depression of the polymorphonuclear cells followed this treatment. A cultural examination of the serum produced negative findings. In a report on a bronchoscopic examination it was stated that organic stenosis was present, almost certainly malignant. A specimen obtained by marrow puncture was somewhat aplastic with depression of formation of the granular series, and it was suggested that a possible factor in the production of the neutropenia was the "Chloromycetin" given prior to the patient's admission to hospital. The result of a Wassermann test was negative. Despite the prophylactic administration of antibiotics, the patient developed ulcerated gums and sore throat. In October an "Aureomycin"-sensitive *Staphylococcus aureus*



was recovered from the throat. Treatment was then commenced with "Aureomycin" and also with cortisone in doses of 100 milligrammes daily. The patient's general condition steadily improved, he regained his normal weight, and an X-ray examination of the chest revealed resolution of the lesion in the apical segment of the left lung. Bronchoscopic examination towards the end of October, 1954, revealed what appeared to be some resolution of the process, in that the mucosal surface was smooth and glistening, and though the left upper lobe orifice was still rotated upwards it was more patent, and with a retrograde telescope no tumour or ulceration was seen. A further differential leucocyte count about the same time revealed the absence of neutrophile cells, the proportion of other cells being lymphocytes 70%, monocytes 28% and eosinophile cells 2%. All the cells appeared mature. Commenting on the case, Dr. English said that it had to be assumed that the patient had had a chronic interstitial pneumonia complicated by agranulocytosis due to "Chloromycetin" therapy.

#### Hæmophilia.

Dr. English also showed a man, aged forty years, who had been admitted to hospital in September, 1954, because of a painful swelling in the floor of the mouth present for four days, and difficulty in swallowing and talking for one day. It was stated that the patient was a hæmophilic and had had a similar episode after a tooth extraction in 1939. He had had no operations, but bruised easily. Investigation of the family history revealed that the patient's mother's brother was a hæmophilic, but the patient's sons were apparently normal. Examination of the patient revealed a hæmatoma in the floor of the mouth. He was treated by the slow administration of one bottle of blood. A tracheotomy set and oxygen were kept at hand in case of emergency. Subsequently the hæmatoma was gradually absorbed and the patient was allowed to go home.

#### Transfusion Reaction.

Dr. English next showed a female patient, aged twenty-six years, who on September 5, 1954, had been admitted to a private hospital for treatment of anemia, her hæmoglobin value being 36%. During the transfusion of one litre of group A+ blood she experienced pain in the back and neck. A second transfusion was associated with an elevation of temperature, rigor and pain in the back and neck. The transfusion was stopped. She had been passing dark urine ever since. For several weeks she had had pain in the limbs. She had a history of peptic ulceration associated with melaena, and in 1952 had had a severe hæmatemesis, for which she received many bottles of group A+ blood by transfusion. She suffered from menorrhagia, and had dragging pain in the right iliac fossa before her menstrual periods. She had suffered from "funny turns" for several years; during these she heard what was going on around her without understanding it, and she could not speak. She had undergone an appendicectomy six years previously.

On her admission to the St. George Hospital on September 12, the patient was jaundiced and very pale. Tenderness was present over the whole of the abdomen, most pronounced in the right iliac fossa and the renal angle. Examination of a catheter specimen of 15 ounces of bile-stained urine revealed in a wet film some granular casts, red cells, desquamated epithelial cells and leucocytes. The urine had a specific gravity of 1.012; it contained albumin (a moderate cloud), bile pigments and urobilinogen (a normal amount), but no bile salts. A full blood count gave the following information: the erythrocytes numbered 3,500,000 per cubic millimetre, the hæmoglobin value was 64% (8.8 milligrammes per 100 millilitres) and the colour index was 0.8; the leucocytes numbered 39,400 per cubic millimetre, 68% being neutrophile cells, 1% lymphocytes, 5% monocytes, 25% band forms and 1% myelocytes. The patient was treated with peanut oil, and with glucose and sodium lactate given intravenously. Two reports from the New South Wales Red Cross Blood Transfusion Service stated that the responses to both the indirect and the direct Coombs test were negative, and that there was no evidence that the patient had received an incompatible transfusion. The jaundice gradually cleared up and the urine became clear.

On October 16, during the transfusion of a further two bottles of packed red cells, the patient complained of tingling in the limbs and became shocked. Examination of the serum and urine at the time revealed no abnormality, and the patient showed no further jaundice. On October 26 a large simple right-sided ovarian cyst was removed. During the patient's stay in hospital the following investigations were carried out, all with normal results: excretion pyelography,

X-ray examination with a barium meal, X-ray examination of the long bones, and marrow puncture.

#### Bilateral Retinal Thrombosis.

With Dr. R. HERTZBERG, Dr. English showed a man, aged seventy years, who had come to hospital in October, 1954, with a history of blurred vision of the right eye for six days, and blurring of vision in the left eye for two days. Examination of the patient revealed bilateral thrombosis of both central retinal veins. He was treated with heparin, 10,000 units being given eight-hourly while the blood clotting time was less than ten minutes; treatment lasted for four days. He was also given "Dendavan" 50 milligrammes six-hourly for four doses, then 50 milligrammes twelve-hourly for fourteen days. The condition was controlled at 30% to 50% of normal prothrombin time.

#### Cervical Spondylosis.

Dr. G. C. WILSON showed a male patient, aged fifty-seven years, who had the history that in 1945 he had fallen down some steps and had been admitted to another hospital. Records revealed that he showed signs of irritation of the cervical part of the spinal cord and that the right plantar response was extensor in type. He complained of inability to move his limbs, but had no paræsthesia. He had loss of power in both arms and in the right leg and incontinence of urine, but sensation was unimpaired. Lumbar puncture and X-ray examination of the skull revealed no abnormalities. X-ray examination of the cervical part of the spine showed no evidence of fracture-dislocation, but there was widening of the disk space between the third and fourth cervical vertebrae, indicating a possible disk lesion in that area. A provisional diagnosis was made of hæmatomyelia, and in one month the patient was beginning to walk. He was discharged from hospital three months later. Since then, he had worked daily at a fairly laborious job. He complained of no disability in his neck, but only of backache, and of difficulty in walking and in using the right arm.

On examination of the patient, he was now found to have partial paraplegia with evidence of long tract involvement in the lower limbs; both plantar reflexes were extensor in type. The right arm was the site of both motor and sensory loss and of considerable residual disability. The hand could be fully extended with the arm flexed behind the back, but not when the arm was held laterally or in front. X-ray examination of the cervical part of the spine revealed degenerative changes in the disk spaces between the fourth and fifth and the fifth and sixth lumbar vertebrae, with gross spondylitic lipping. No further examination of the cerebro-spinal fluid and no myelographic investigation had as yet been carried out, but the appearances strongly supported the clinical diagnosis of spondylitis with cervical myelopathy. Dr. Wilson said that an interesting feature of the case was the return of the patient to full employment for four years after acute cervical cord compression, with great residual disability in the right upper limb and persisting signs of cord compression as evidenced by the bilateral Babinski response. He pointed out that the frequency of these lesions had again been reemphasized by Brain, writing in *The Lancet* of April 3, 1954, in the following words: "Cervical spondylosis damages the spinal cord sufficiently often to make spondylitic myelopathy one of the commonest, if not the commonest, disease of the spinal cord during and after middle life."

#### Lead Poisoning.

Dr. Wilson's second patient was a boy, aged five years, who had been admitted to hospital in June, 1954, with a history of sudden weakness of the legs, walking to the left, vomiting and loss of consciousness. It was stated that two years previously he had had a sudden attack of loss of balance and six months after that he had had convulsions after a head injury. On his admission to hospital, the child was found to be pale and stuporose with both the head and eyes deviated to the right and nystagmus to the right. The left pupil was larger than the right, and both reacted sluggishly to light. There was a suggestion of increased tone on the left side, and a left Babinski response was obtained. Investigation of the blood revealed a total of 13,000 leucocytes per cubic millimetre, 5% of coarsely stippled cells amongst erythrocytes and a hæmoglobin value of 10.8 grammes per centum. Lumbar puncture produced fluid under increased pressure and containing 62 milligrammes of protein per 100 millilitres, but otherwise normal. X-ray examination of the long bones and ilia revealed appearances consistent with lead poisoning; the urinary lead estimation was 0.3 milligramme per litre, which was confirmatory evidence. Since then, with the patient under treatment, the



urinary lead estimation had slightly diminished and the number of stippled cells had fallen to 2-2%. On examination five months after his admission to hospital the patient was still pale, but the pallor was consistent with the degree of anaemia. The findings from examination of the central nervous system were now normal except for possible weakness in dorsiflexion of the feet and wrists. The pupils and optic disks were normal, and the blood pressure was 115 millimetres of mercury, systolic, and 80 millimetres, diastolic. The blood urea content (fasting) was 32 milligrammes per centum. Microscopic examination of the urine revealed a few red blood cells and leucocytes. Dr. Wilson said that the patient had lived for four years in a weatherboard house at least fifty years old. He had had the habit of biting the window sills and veranda railings since he was able to walk, and in many places the timber had been bared by his efforts. In addition, his mother said that whenever rain or wind occurred, large flakes of dry paint were detached and strewn over the veranda. The full thickness of the paint was cast off in this manner and the base was quite white, which she understood was "pure lead". Dr. Wilson said that the case illustrated the occurrence of encephalopathy in a child with evidence of lead absorption, due most probably to absorption of lead paint from structures painted many years previously. It reemphasized the fact that lead poisoning of the origin described, with which physicians in Queensland had long been familiar, was an occasional cause of encephalopathy in New South Wales. Treatment had been along conventional lines, with the emphasis on the initial supply of a diet of high calcium and phosphorus content, the de-leading process being best left to Nature. BAL had been generally discredited in treatment, but a favourable report of its use in cases of lead encephalopathy, which had been reported in the *Journal of Pediatrics* of April, 1953, required to be mentioned. Calcium disodium versenate had been favourably reported as a de-leading agent and as a drug for the treatment of encephalopathy. It was given intravenously in a daily dose not exceeding one gramme per 30 pounds and not more than four grammes per 30 pounds a week. In the case under discussion, the administration of "Luminal" together with the performance of lumbar puncture and the free use of calcium phosphorus and vitamin D had proved beneficial. As a concluding point, Dr. Wilson said that the elevated fasting blood urea level and the findings on microscopic examination of the urine suggested that the process of nephrosclerosis had commenced. He pointed out that the patient had been presented with the permission of Dr. J. C. English, to whom he made grateful acknowledgement.

#### Cerebellar Aplasia.

Dr. Wilson next showed a girl, aged five years, whose mother complained that the patient "did not walk well" and would "dawdle" in the street and seemed unwilling to walk to school. On the other hand, she was bright and intelligent and seemed "advanced" in her kindergarten. Investigation of the past history of the child revealed little of importance beyond the fact that the child was born at full term, weighing seven pounds (her present weight was three stone). The birth was described as "very difficult, prolonged and instrumental". The child had a stormy neonatal period, was disinclined to take her food and was "kept in an oxygen tent for three weeks". She spoke at the age of sixteen months, sat up unaided at the age of fifteen months and walked at the age of twenty-two months. She had had no fits. There was no significant impairment of her mental functions, nor was there any evidence of pyramidal disease. Sphincter control was gained at the age of two years. She seemed to be "over-bright". The parents had also noted that her coordination had never been perfect, and that she had "difficulty in feeding herself with fluids and solids". She had had an unsteady gait of varying degree ever since she began to walk. However, she could use scissors without noticeable unsteadiness.

Examination of the patient revealed no significant abnormality except a slightly ataxic, not wide-based gait, which was a little untidy, with a tendency to circumduction of the left leg. In the upper limbs, a pronounced intention tremor was present, with some static tremor, more on the left than on the right side. In the lower limbs intention tremor was much less evident; in fact, heel-shin movements were within normal limits. There were no other abnormal findings on clinical examination, but the electroencephalogram indicated some cerebral damage which, it was suggested, might be due to anoxia. The skull circumference was eighteen and a half inches. X-ray examination of the skull and the cervical part of the spine revealed no abnormality. No meningo-myelocoele was apparent, but there were moderate epicanthic folds. Dr. Wilson said that in

the absence of any signs or history of heredo-familial disease, the child's bilateral cerebral syndrome was presumably acquired and might well have resulted from birth trauma with haemorrhage and anoxia. Discussing the differential diagnosis, Dr. Wilson said that aplasia of the cerebellum was the diagnosis into which the case most probably fitted. He said that there was a group of "cerebral palsies" in which birth trauma, including anoxia, congenital defects and prenatal development were involved. The incidence of defects could on rare occasions, as in the present case, fall mainly or solely on the cerebellum. The symptoms were variable, being associated with no symptoms throughout life or with varying degrees of muscular incoordination as in the present case.

#### Ehlers-Danlos Syndrome.

Dr. Wilson's last patient was a boy, aged twelve years, suffering from Ehlers-Danlos syndrome. Before discussing the condition further, Dr. Wilson said that it seemed wise to quote from an article by Freeman published in the *American Journal of Diseases of Children* in 1950: "Not all the features of the total pattern are seen in every patient. In fact, both the actual occurrence of each aspect and the degree of its prominence vary so that in one person elasticity of the skin is less noticeable, while laxity of the joints is unduly prominent. Subcutaneous nodules are seen less commonly." In the patient under discussion, who was an otherwise healthy, intelligent, normally developed boy of twelve years, the following manifestations were noted: (i) "Fishmouth" gaping of wounds, which occurred mainly on the shins where the skin was velvety and loosely attached and consequently freely movable over the tibia. The wounds occurred on very slight trauma (on one occasion, after the child had stepped down suddenly from a pavement), and gaped widely, and sutures inserted promptly "cut out". The wounds, whether stitched or unstitched, healed with a wide but papyraceous scar. Such scars covered the boy's knees and shins. They were bluish with a tendency to the formation of pseudo-molluscous tumour at the site of trauma. (ii) Skin elasticity. The skin over the forearms and elbows could be pulled out painlessly to a distance of four inches and had a velvety quality. It was movable over the underlying tissues in a way which had been likened to the eyelid skin of a normal person. (iii) Joint mobility. This was excessive, the patient having the ability to clasp the right ear lobe with the right arm behind his back and also to bring the hands clasped posteriorly over the lumbar region upwards over his head.

Dr. Wilson said that the patient presented an example of the Ehlers-Danlos syndrome in which increased elasticity and fragility of the skin and blood vessels was typically shown by the lack of fixation to certain bony prominences, notably the tibia in the present case, and "fishmouth" gaping of wounds. Those wounds had healed with typical scars and without underlying subcutaneous tissue. Other features were evident, such as extreme joint mobility and "tenting" of the skin. Dr. Wilson remarked that in the Ehlers-Danlos syndrome the elasticity of the skin might be limited to a few areas of the body, to one side of the body or to mucous surfaces, especially the mouth or tongue. It was usually greatest over the bony prominences, where it was normally fixed.

#### Haemolytic Anaemia.

DR. R. L. WALKER showed a boy, aged thirteen years, who had been known to have anaemia for the past five years. He had first been treated in 1950 at the Royal Alexandra Hospital for Children, Camperdown, where he was found to have a normochromic anaemia with a reticulocytosis of 15%. He had also then a moderately enlarged spleen. His condition was diagnosed as one of hereditary haemolytic anaemia and splenectomy was performed, five accessory spleens also being removed at the time of operation. In the immediate post-operative period he had several blood transfusions, but on his discharge from hospital he was well and remained so for two or three years. Two years before his admission to the St. George Hospital, he began to develop again the symptoms of lethargy, pallor and fatigue. He also developed asthma and showed an allergic reaction to penicillin. During that time he had several pyrexial attacks of unknown cause. In May, 1954, he became jaundiced and passed dark urine, and on admission to St. George Hospital was shown to have the typical signs of haemolytic anaemia. His haemoglobin value was 70%, his serum bilirubin content was 2.0 milligrammes per 100 millilitres, the proportion of reticulocytes was 23%, and the total leucocyte count was 20,000 per cubic millimetre with an eosinophilia of 23%. The results of red cell fragility tests were normal. The result of a Coombs test was positive. The patient's serum was found to contain

autoagglutinins. A provisional diagnosis was made of acquired hemolytic anemia and the patient was given cortisone in a dosage of 75 milligrammes daily by mouth. That treatment was continued with gradually decreasing dosage until October, 1954. During the time of treatment no appreciable change was noted in the blood picture. In September, 1954, the cervical glands were noticed to be enlarged, and after a month one was removed for biopsy. Microscopic examination of a section showed the presence of a non-specific inflammatory reaction rather than of progressive reticulosis. Bone marrow puncture at the same time showed the presence of hyperplastic marrow with 60% of nucleated red cells; there was no evidence of leucemia. Dr. Walker said that the boy's condition was one of acquired hemolytic anemia of unknown cause. The possibility had to be considered of hypersplenism due to the activity of an accessory spleen.

#### Needle in the Abdomen.

Dr. A. C. THOMAS showed a girl who had been admitted to hospital in November, 1953, at the age of twenty months, after having swallowed a long straight pin. X-ray examination showed the presence of a foreign body in the right mid-abdomen, probably in the beginning of the transverse colon. X-ray examinations were carried out at intervals over the following month and it was reported successively that the foreign body was in the right iliac fossa, in the lower pole of the caecum, at the right side of the abdomen at the level of the transverse processes of the third and fourth lumbar vertebrae, just above the right iliac crest and between the right iliac crest and the costal margin, possibly in the ascending colon, but also possibly in the small bowel. One month after the child's admission to hospital laparotomy was carried out through a right paramedian incision. A two-inch needle was found in the retroperitoneal tissue on the right side at the level of the junction of the third and fourth lumbar vertebrae. Convalescence was uneventful and subsequent X-ray examination failed to show the presence of any foreign body.

#### Lymphosarcoma of the Small Gut.

Dr. Thomas's second patient was a man, aged forty-three years, who had been admitted to hospital in December, 1953, with a history of sudden severe pain in the abdomen beginning on the previous day. On examination of the patient, his abdomen was found to be rigid and tender. His tongue was dry, his chest was normal. His pulse rate was 120 per minute and his blood pressure 140 millimetres of mercury, systolic, and 90 millimetres, diastolic. His skin was pale, but he was not sweating. A provisional diagnosis of ruptured ulcer was made and gastric lavage was commenced. At operation on the following day resection of small bowel was carried out with end-to-end anastomosis. Carcinoma of the jejunum was found with rupture and peritonitis; 46 inches of jejunum were excised. The pathologist reported that the piece of bowel removed had a polypoid tumour protruding into the lumen of the bowel surrounded by a shallow ulcer which encircled the bowel wall, perforating it at one point adjacent to the mesentery. The tumour protruded out into the mesentery, producing an indurated mass approximately six centimetres in diameter. Numerous enlarged lymph glands were present in the attached mesentery. On microscopic examination the tumour was found to be most unusual. The appearances were those of a slowly growing lymphosarcoma of the lympho-reticular type. Most of the tumour was inflammatory and necrotic. The surrounding lymph glands did not appear to be involved by the tumour process and showed a simple reactive hyperplasia with edema. Scattered in the inflammatory and necrotic material of the intestinal mass were diffuse areas of neoplastic proliferation made up of lymphocytic cells and reticular cells, some of which were multinucleated. White fragments taken from the mesentery were of an inflammatory, fatty nature. The patient was discharged from hospital six weeks after operation.

#### Henry's Approach for Cure of Femoral Hernia.

Dr. Thomas finally showed two patients who had been operated on for cure of femoral hernia, Henry's approach having been used.

One patient, a woman, aged seventy years, had been admitted to hospital in September, 1954, with an incarcerated right femoral hernia. She had had the hernia for ten years, and it had always previously been fully reducible and had given no trouble. She had also had tuberculosis for two years. The hernia was repaired through a mid-line incision, Henry's approach being used. A large femoral sac containing omentum was found. The patient was discharged from hospital three weeks after operation.

The other patient was a man, aged sixty-six years, who had been admitted to hospital in October, 1954, with a history of right-sided hernia for about five years and chronic bronchitis for ten years. He had bilateral femoral hernias. Repair was carried out on both sides through a mid-line incision, Henry's approach being used. Except for the patient's bronchitis, convalescence was uneventful and he was discharged from hospital with the wound healed twelve days after operation.

#### Total Gastrectomy.

Dr. R. P. MELVILLE showed a man, aged seventy-eight years, who had been admitted to hospital in April, 1954, with a history of melena present for seven days, followed one week later by hematemesis; these episodes had occurred in January, 1954. X-ray examination showed a filling defect on the lesser curvature of the stomach, suggesting carcinoma. Specific interrogation and physical examination produced evidence of the presence of aortic regurgitation, but little that was relevant to the gastric condition. At operation a fungating mass was found in the upper two-thirds of the stomach, extending to the cardio-oesophageal junction. No secondary deposits could be felt in the liver. Gastrectomy and enterostomy were carried out, the jejunum being anastomosed to the oesophagus by an end-to-side jejunal anastomosis. Post-operative progress was interrupted first by the development of paralytic ileus three days after operation, which settled down with appropriate therapy, and second by the breaking down of the upper portion of the wound two weeks after operation, with the formation of a fistula from the oesophageal anastomosis to the skin surface. The fistula gradually closed and the patient was discharged from hospital six weeks after operation.

#### Recurring Pancreatitis with Cyst Formation.

Dr. Melville's second patient, a woman, aged fifty-five years, had been admitted to hospital in August, 1952, with a history of abdominal pain and vomiting of sixteen hours' duration. At the time of her admission to hospital the pain was severe and constant and situated in the upper part of the abdomen. There was a past history of similar attacks of shorter duration two years previously. The patient had undergone appendectomy and hysterectomy many years previously. On examination of the patient, her abdomen was found to be tender in the epigastrium and right hypochondrium, but there was no rigidity. The percussion note was dull over the abdomen, but there was no shifting dullness and no borborygmi were heard. Murphy's sign was absent. On rectal examination severe pain was experienced by the patient on entry of the examining finger. A provisional diagnosis was made of (i) biliary colic and (ii) leaking ulcer. X-ray examination revealed no gas under the diaphragm, but an area was seen containing "a calcified appendix" overlying the right iliac crest. Electrocardiographic examination revealed no abnormality. At laparotomy, sero-sanguineous free fluid was found in the peritoneal cavity. The omentum, parietal peritoneum and small bowel were studded with white nodules which were thought probably to be lesions of carcinomatosis. Biopsy of the omentum showed the presence of fat necrosis due to pancreatitis. After operation the patient experienced some abdominal pain, but that gradually cleared. A subsequent Grahame's test revealed no abnormality.

The patient was next examined in July, 1953, when she had just survived another severe attack of acute pancreatitis. She had persistent pain and tenderness in the left hypochondrium with low-grade pyrexia. At laparotomy, a large cystic collection of opalescent fluid was found in the lesser sac, which was drained internally. The common bile duct was explored, but as sounds passed easily into the duodenum and there was no apparent abnormality in the biliary tree the duct was closed and the tube put down to it. Drainage ceased after about five weeks, but the opening had to be enlarged to provide full drainage during convalescence.

The patient remained comparatively well during 1954, when she developed bronchitis. She would cough till she vomited, and her abdomen subsequently did not recover from that. She commenced to experience severe spasms of upper abdominal pain, passing up under the left breast. The pain was worse in spasms and burning in character; a dull aching pain persisted between the spasms. She would vomit during the pain and after eating. Subsequently, she had suffered from complete anorexia. On examination of the patient, her general condition was found to be well maintained. A diffuse resistance of the abdomen was palpable in the epigastrium and left hypochondrium, with considerable tenderness. X-ray examination with a barium meal showed the stomach to be displaced over a large circular tumour consistent with a diagnosis of pancreatic cyst. At laparotomy



in November, 1954, a large pseudopancreatic cyst was found filling the lesser sac and containing 36 ounces of fluid which were removed by aspiration. Removal of the cyst was impossible, and it was anastomosed to a loop of jejunum brought up through the megacolon in a Roux type of anastomosis. Convalescence was uneventful, the patient being discharged from hospital on the twelfth day after operation.

#### Argentaffin Carcinoma of the Caecum.

Dr. Melville's third patient was a woman, aged seventy-four years, who had been admitted to hospital in April, 1954, with a history of abdominal pain present for eighteen months, abdominal swelling for six months and change of bowel habits for four months. The abdominal pain came in attacks, being worst in the right iliac fossa, and was followed by abdominal distension. Associated with these symptoms were borborygmus, loss of appetite, loss of weight, general weakness and tiredness. The change in bowel habits consisted of alternate attacks of constipation followed by diarrhoea. There was no change in colour of bowel motions, no passage of blood *per rectum* and no jaundice. The patient, who had always lived in Sydney, had had "gall trouble" for years, but no previous abdominal operations. Examination of the patient revealed two small nodules palpable on the abdominal wall near the umbilicus. A large mass was felt in the right iliac fossa, and the liver was palpable one finger's breadth below the left costal margin. The abdomen was soft. Rectal examination revealed no abnormality. A provisional diagnosis was made of carcinoma of the caecum with secondary deposits in the abdominal wall. Hemicolectomy was performed. An area was removed extending from the last ten inches of the ileum to the middle third of the transverse colon, and end-to-end anastomosis of the ileum to the transverse colon was carried out. Secondary carcinoma of the liver was found to be present. The patient's recovery from operation was uneventful. The pathologist reported that in the specimen removed at operation there was a flat, hard tumour, two centimetres in diameter, one inch above the ileo-caecal valve, which extended through to the serosal surface puckering the attached mesentery, where there were two lymph glands which appeared to be involved in the growth. Microscopic examination of the tumour revealed the structure of an argentaffin carcinoma. Both lymph nodes were extensively involved.

#### Malfixation of the Large Bowel.

Dr. Melville's fourth patient was a woman, aged thirty-five years, who had been admitted to hospital on October 20, 1954, with a history of absolute constipation for thirty hours, central abdominal pain for thirty hours and vomiting for six hours. She had had a previous operation in December, 1953, for an obstruction of the sigmoid colon due to a band of lax mesentery. Examination of the patient revealed that the abdomen was soft with maximum tenderness around the umbilicus, a hyperresonant percussion note from slight distension and diminished bowel sounds. A provisional diagnosis of large bowel obstruction was made. Plain X-ray examination of the abdomen revealed gaseous distension of the large bowel, which ceased rather abruptly in the region of the middle section of the descending colon. A fluid level was present in what appeared to be the caecum. At operation the very small mesenteric attachments of the large bowel in general were most noticeable. The transverse colon was not attached to the greater omentum and was obstructed by a band stretching from approximately three inches from the ileo-caecal valve along the ileum and running to the falciform ligament, causing both small and large bowel obstruction as far as the proximal one-third of the transverse colon. A small band was found crossing the descending colon. The pathologist was unable to establish the fact that the band was a "Meckel's diverticulum remnant". Post-operative progress was satisfactory.

Dr. Melville then showed a woman, aged sixty-five years, who had been admitted to hospital on October 7, 1954, with a history of vague nagging pains in the right side of the abdomen with radiation to the right leg and the back, of nine days' duration. She had had anorexia for two months and had been nauseated and constipated for five days. She had not suffered from dysuria or from frequency of micturition. She had had no previous attacks of abdominal pain or abdominal operations. She had had rheumatoid arthritis for years. Physical examination of the patient revealed nothing of significance in the abdomen or elsewhere. Over the next few days the patient experienced attacks of abdominal pain which commenced in the right loin and radiated to the epigastrium and down over the course of the renal tracts, suggesting renal colic. There was no burning or scalding on micturition, but some polyuria

followed the attacks of pain. Microscopic examination of the urine revealed no abnormality. A plain X-ray examination of the renal tracts was unsatisfactory. Chemical and spectroscopic examination of the urine revealed no evidence of porphyria. A barium meal X-ray examination revealed no organic lesion in the large bowel. However, the ascending colon appeared to be reversed in direction, so that the hepatic flexure lay in the right iliac fossa and the caecum was under the liver. The appendix could be seen at the tip of the caecum, and that area appeared to be fixed. Tenderness suggesting probable appendicitis was present. At laparotomy through a right paramedian incision the appendix was found in the position indicated by the X-ray film and was removed. Post-operative progress was satisfactory.

#### Volvulus of the Sigmoid Colon.

Another patient shown by Dr. Melville was a man, aged sixty-eight years, who had been admitted to hospital in July, 1954, complaining of generalized colicky abdominal pain, abdominal distension and absolute constipation for two days. He had suffered from previous similar attacks for many years, but none so severe as this one. On examination, the patient's abdomen was found to be very distended and hard, but there was no tenderness and no masses were palpable. Rectal examination revealed no abnormality. Because the gross abdominal distension contrasted with the patient's good general condition, a pre-operative diagnosis was made of volvulus of the sigmoid colon. Tubes were passed into the rectum with the patient under spinal anaesthesia and produced reduction and decompression of the volvulus. Some mucus and a small quantity of blood and faeces were expelled. After suitable pre-operative bowel preparation, resection of the grossly dilated hypertrophied sigmoid loop was performed through a left oblique incision. The bowel was resected by the Paul Mikulicz technique because of the disproportion between the upper and lower sigmoid loops. The colostomy was brought through the left oblique incision. There was severe abdominal distension during the first post-operative days, and four days after operation the wound had to be resutured because of prolapse of small bowel around the colostomy. Subsequent convalescence was uneventful, crushing of the colostomy spur and closure of the colostomy being carried out a month later. Dr. Melville said that at the time of the meeting the patient was well, his bowels were acting regularly and he had had no more attacks of abdominal pain.

#### Sclerosing Osteomyelitis of the Femur.

Dr. Melville's last patient was a boy, aged two years, who had been admitted to hospital in July, 1954, with a history of pain in the right thigh of twelve months' duration. The child's parents had noticed that he had favoured the right leg since commencing to walk at the age of eleven months. The patient's birth had been normal and there was no past history of trauma to the limb. On examination, the child was found to be crying and irritable, but there was no local tenderness of the right thigh, no deformity was present and movements were normal. The rectal temperature was 99.5° F. Examination of all other systems revealed no significant abnormality. A provisional diagnosis was made of Brodie's abscess of the shaft of the right femur. X-ray examination showed that the whole of the middle third and portion of the upper third of the right femur below the lesser trochanter were involved in a bone lesion which had resulted in periosteal thickening laid down in successive layers around the whole circumference of the femur. No bone destruction was seen except a doubtful area on the medial posterior aspect. The radiologist considered that probably the lesion was a chronic simple inflammatory condition in the nature of a cortical abscess, but it was not possible to exclude Ewing's sarcoma or sclerosing osteogenic sarcoma. He suggested that skiagrams of the chest and the femur be kept under review, but thought that probably the only means of arriving at a certain diagnosis would be by biopsy of an active portion of the lesion. Subsequent X-ray examination in August revealed no abnormality of the chest. The condition of the femur appeared to be much the same as before, although it was thought that there might be some slight encroachment on the medulla. The appearance was, in the radiologist's opinion, suggestive of Ewing's sarcoma. The periosteal reaction, particularly in the lateral X-ray film, showed a distinct onion pattern, which was regarded as being very suggestive of Ewing's sarcoma. The radiologist suggested that a Wassermann test be performed. Examination of the blood showed the haemoglobin value to be 92% (12.7 grammes *per centum*). No significant changes were seen in the stained film. The total leucocyte count was 8600 per cubic millimetre, 45% being neutrophilic cells, 43% lymphocytes, 7% monocytes and 5% eosinophilic cells. The blood



sedimentation rate by the micro method was seven millimetres in one hour (normal range 0 to 6 millimetres in one hour). The serum phosphorus content was four milligrammes per 100 millilitres of serum (normal limits four to five milligrammes per 100 millilitres). The results of blood Wassermann and Kahn flocculation tests were negative. Exploration of the right femur with biopsy was carried out under penicillin "cover". Microscopic examination of fragments of bone obtained showed hypertrophy of an orderly pattern. Scattered foci of chronic and inflammatory cells were present in the supporting tissue, and the pathologist considered that the overall appearances would be in keeping with a low-grade, chronic inflammatory process. No tumour tissue could be demonstrated in the fragments. However, the pathologist commented that such changes were sometimes seen at the periphery of bone tumours, and should the growth progress, a further biopsy from a different part of the mass would be advisable.

(To be continued.)

#### VICTORIAN BRANCH NEWS.

##### The Sir Richard Stawell Oration.

THE twenty-second Sir Richard Stawell Oration will be delivered by the Right Honourable R. G. Menzies, C.H., Q.C., M.P., Prime Minister of the Commonwealth of Australia, in the Arts Theatre, University of Melbourne, on Saturday, October 8, 1955, at 8.15 p.m. The title of the oration will be announced later.

### Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

#### THE KANGAROO.<sup>1</sup>

[From "A Narrative of the Expedition to Botany Bay", by Watkin Tench, Captain of Marines.]

OF quadrupeds except the Kangaroo I have little to say. The few met with are almost invariably the opossum tribe but even these do not abound. To beasts of prey we are utter strangers nor have we yet any cause to believe that they exist in the country. And happy it is for us that they do not, as their preference would deprive us of the only fresh meals the settlement affords, the flesh of the Kangaroo. This singular animal is already known in Europe by the drawing and description of Mr. Cook. To the drawing nothing can be objected but the position of the claws of the hinder leg which are mixed together like those of a dog whereas no such indistinctness is to be found in the animal I am describing. It was the Chevalier de Perouse who pointed this out to me, while we were comparing a Kangaroo with the plate, which as he justly observed, is correct enough to give the world in general, a good idea of the animal but not sufficiently accurate for the man of science.

Of the natural history of the Kangaroo we are still very ignorant. We may, however, venture to pronounce this animal, a new species of opossum, the female being furnished with a bag, in which the young is contained, and in which the teats are found. These last are only two in number, a strong presumptive proof, had we no other evidence, that the Kangaroo brings forth rarely more than one at a birth. But this is settled beyond a doubt, from more than a dozen females having been killed, which had invariably but one formed in the pouch. Notwithstanding this, the animal may be looked on as prolific, from the early age it begins to breed at, Kangaroos with young having been taken of not more than thirty pounds weight; and there is room to believe that when at their utmost growth they weigh not less than one hundred and fifty pounds. After this perhaps I shall hardly be credited, when I affirm that the Kangaroo on being brought forth is not larger than an English mouse. It is however in my power to speak positively on this head, as I have seen more than one instance of it.

<sup>1</sup> From the original in the Mitchell Library, Sydney.

In running this animal confines himself entirely to his hinder legs, which are possessed with an extraordinary muscular power. Their speed is very great, though not in general quite equal to that of a greyhound; but when the greyhounds are so fortunate as to seize them, they are incapable of retaining their hold from the amazing struggles of the animal. The bound of the Kangaroo, when not hard pressed, has been measured and found to exceed twenty feet. At what time of the year they copulate and in what manner the testicles of the male are placed contrary to the usual order of nature. When young the Kangaroo eats tender and well flavoured, tasting like veal, but the old ones are more tough and stringy than bull-beef. They are not carnivorous and subsist altogether on particular flowers and grass. Their bleat is mournful and very different from that of any other animal; it is, however, seldom heard but in the young ones.

## Naval, Military and Air Force.

### APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 20 and 22, of May 5 and 19, 1955.

#### AUSTRALIAN MILITARY FORCES.

##### Citizen Military Force.

###### Northern Command.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 1/62657 Captain R. A. Rimington is confirmed.

###### Southern Command.

Royal Australian Army Medical Corps (Medical).—To be Temporary Major, 30th March, 1955: 2/127019 Captain R. H. D. Bean.

###### Central Command.

Royal Australian Army Medical Corps (Medical).—The provisional rank of F4/1099 Captain E. M. Prest is confirmed.

###### Western Command.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 4/32003 Captain B. J. Shea is confirmed. 5/26508 Captain R. Allen is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Western Command), 9th February, 1955. To be Captains (provisionally), 30th March, 1955: 5/26529 Max Traub, 5/26530 Samuel Shub, 5/26531 Max Norman Isadore Walters, and 5/45806 Joe Maurice Lubich.

###### Tasmania Command.

Royal Australian Army Medical Corps (Medical).—To be Temporary Major, 30th March, 1955: 6/9210 Captain A. C. D. Corney.

#### Reserve Citizen Military Forces.

##### Royal Australian Army Medical Corps.

Northern Command.—To be Honorary Captains: Mark Louis Mezger, 18th March, 1955, Robert Joseph Thorpe, 21st March, 1955, and Ian Drake Thelander, 28th March, 1955.

Southern Command.—To be Honorary Captains: William Melville McDonald, 28th February, 1955, and Erwin Arnold Dodge and Vernon Charles Marshall, 1st March, 1955.

#### ROYAL AUSTRALIAN AIR FORCE.

##### Permanent Air Force: Medical Branch.

The short-service commission of Flight Lieutenant (Acting Squadron Leader) M. N. McLaughlin (024303) is extended to 11th June, 1958.

Squadron Leader W. L. Rait (033063) is granted the acting rank of Wing Commander, 1st April, 1955.

##### Air Force Reserve: Medical Branch.

The following officers are placed on the Retired List, 10th February, 1955: Flight Lieutenant (Temporary Wing Commander) L. B. Cox (1179); Flight Lieutenants (Temporary Squadron Leaders) H. S. Kirkland (1181) and N. A. Albiston (N57550).

## Congress Notes.

### AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

THE following information relates to the Ninth Session of the Australasian Medical Congress (British Medical Association) to be held at the University of Sydney from August 20 to 27, 1955.

#### Plenary Sessions.

The following is the programme for the plenary sessions, all of which will be held on Tuesday, August 23, 1955.

9.30 a.m. to 12.30 p.m.

Subject: "Cancer." Chairman: Sir Charles Blackburn (New South Wales). Speakers: Sir Stanford Cade (United Kingdom), "The Place of Surgery in the Treatment of Cancer". Sir Peter MacCallum (Victoria), "Cancer Concepts". Professor E. S. J. King (Victoria), "The Natural History of Cancer". Professor B. W. Windeyer (United Kingdom) will open the discussion.

2 p.m. to 3.30 p.m.

Subject: "Control of Infectious Diseases." Chairman: Dr. R. J. Jackson (New South Wales). Speakers: Dr. H. McLorinan (Victoria), "General Methods of Control of Infectious Diseases with Special Reference to the Role of the Hospital". Dr. D. W. Johnson (Queensland), "Methods of Control of Infectious Diseases with Special Reference to the Health Department". Professor J. A. R. Miles (New Zealand), "Some Aspects of the Control of Animal Diseases Transmissible to Man". Dr. C. C. Jungfer (South Australia), "The Control of Infectious Diseases in a Rural Community".

Subject: "Rehabilitation." Chairman: Dr. A. Talbot Rogers (United Kingdom). Speakers: Dr. G. G. Burniston (Victoria), "Rehabilitation of the Disabled with Special Reference to its Present Progress in Australia". Dr. S. G. Nelson (New South Wales), "The Place of a Rehabilitation

Unit in a General Hospital". Dr. D. O. Longmuir (Victoria), "The Functions of a Rehabilitation Centre and its Importance in a Total Scheme of Rehabilitation".

3.45 p.m. to 5.15 p.m.

Subject: "Industrial and Occupational Hazards to Health." Chairman: Dr. H. M. L. Murray (Tasmania). Speakers: Dr. G. C. Smith (New South Wales), "Some Current Problems in Occupational Health". Dr. J. H. Gowland (Victoria), "Handling of Health Hazards in the Chemical Industry". Dr. L. J. Gurry (Victoria), "Health Maintenance in a Modern Oil Refinery". Dr. D. Gordon (Queensland), "Education and Occupational Hazards".

Subject: "The Use and Abuse of Hormones in Medical Practice." Chairman: Dr. W. W. S. Johnston (Victoria). Speakers: Dr. H. P. Taft (Victoria), Professor L. F. Dods (New South Wales), Dr. J. W. Johnstone (Victoria), Dr. A. M. Johnson (New South Wales).

## Post-Graduate Work.

### SEMINARS AT ROYAL PRINCE ALFRED HOSPITAL.

THE following seminars will be held on Friday from 1.15 to 2.15 p.m. in the Scot Skirving Lecture Theatre, Royal Prince Alfred Hospital, Sydney. All members of the medical profession are invited to attend. Seminars will be followed at 2.30 p.m. by clinico-pathological conferences conducted by Dr. V. McGovern and Professor F. R. Magarey's staff, and at 4.15 p.m. by a clinical meeting in the Scot Skirving Lecture Theatre.

July 15, haematology section, "The Clinical Aspects of the Rh Factor", Dr. R. Walsh (by invitation). July 22, neurology section, "The Syndrome of Internal Carotid Occlusion", Dr. G. Selby and Dr. B. Turner (by invitation). July 29, gastroenterology section, "The Physiology of Pain in the Gastro-Intestinal Tract", Dr. A. Skyring. August 5, endocrinology

### DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JUNE 18, 1955.<sup>1</sup>

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory. <sup>2</sup>	Australian Capital Territory.	Australia. <sup>3</sup>
Acute Rheumatism .. ..	..	5(3)	1	..	..	..	..	..	6
Amoebiasis .. ..	..	..	..	..	..	..	..	..	..
Ancylostomiasis .. ..	..	..	3(1)	..	..	..	..	..	3
Anthrax .. ..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..
Brucellosis .. ..	..	..	2	..	..	..	..	..	2
Cholera .. ..	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus) .. ..	1	..	..	..	..	..	..	..	1
Dengue .. ..	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile) .. ..	3(3)	10(9)	3(2)	..	..	..	..	..	16
Diphtheria .. ..	8(5)	3(2)	3(2)	2(2)	13(8)	..	..	..	29
Dysentery (Bacillary) .. ..	..	2(2)	6(6)	1(1)	..	1	..	1	11
Encephalitis .. ..	..	2(1)	..	..	..	..	..	..	2
Filariasis .. ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice .. ..	..	..	..	..	..	..	..	..	..
Hydatid .. ..	..	..	..	..	..	..	..	..	..
Infective Hepatitis .. ..	32(1)	76(51)	..	15(12)	3(1)	..	..	..	126
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..
Leprosy .. ..	..	..	1	..	1	..	..	..	2
Leptospirosis .. ..	..	..	9(1)	..	..	..	..	..	9
Malaria .. ..	..	..	..	..	..	..	..	..	..
Meningococcal Infection .. ..	3(1)	3(1)	1(1)	..	1	..	..	..	8
Ophthalmia .. ..	..	..	..	..	..	..	..	..	..
Ornithosis .. ..	..	..	..	..	..	..	..	..	..
Paratyphoid .. ..	..	..	..	..	..	..	..	..	..
Plague .. ..	..	..	..	..	..	..	..	..	..
Poliomyelitis .. ..	..	..	..	..	..	..	..	..	..
Puerperal Fever .. ..	2	1	2	1	..	..	..	..	6
Rubella .. ..	..	15(13)	..	1(1)	1(1)	..	..	..	17
Salmonella Infection .. ..	..	23(15)	23(4)	5(4)	..	..	..	..	67
Scarlet Fever .. ..	11(4)	..	..	..	..	..	..	..	..
Smallpox .. ..	..	..	..	..	..	..	..	..	..
Tetanus .. ..	..	..	1	..	1	..	..	..	2
Trachoma .. ..	..	..	..	..	4(2)	..	..	..	4
Trichinosis .. ..	..	..	..	..	..	..	..	..	..
Tuberculosis .. ..	..	..	..	..	..	..	..	..	..
Typhoid Fever .. ..	39(30)	14(10)	8(5)	4(4)	14(12)	1(1)	..	..	80
Typhus (Flea-, Mite- and Tick-borne) .. ..	1	..	1	..	..	..	..	..	1
Typhus (Louse-borne) .. ..	..	..	2(1)	..	..	..	..	..	3
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..

<sup>1</sup> Figures in parentheses are those for the metropolitan area.

<sup>2</sup> Figures not available.

<sup>3</sup> Figures incomplete owing to absence of returns from Northern Territory.

and metabolism section, "Ovarian Agenesis", Dr. J. Copley (Professor Robert Platt, Professor of Medicine, University of Manchester, will attend this seminar and demonstrations to follow). August 12, thoracic and radiology sections, "Bronchial Anatomy", Dr. H. M. Rennie and Dr. A. R. Colwell. August 19, cardio-vascular section, "Cardiac Glycosides", Professor R. H. Thorp, Professor of Pharmacology, University of Sydney. September 2, neurology section, "A Review of the Myopathies with Electrical Studies", Dr. W. Burke (by invitation) and Dr. L. R. Rail. September 9, arthritic section, "The Clinical Management of Rheumatoid Arthritis", Dr. W. Copeman, Chairman, Empire Rheumatism Council (by invitation). September 16, paediatrics section, "The Normal Infant", Dr. S. P. Bellmaine, followed by a meeting at 4 p.m. at the Royal Alexandra Hospital for Children. September 23 (Royal Prince Alfred Hospital Reunion Week), gynaecology section, "Repair Work in Gynaecology", Professor T. N. A. Jeffcoate (McIlraith Guest Professor, 1955), Mr. G. G. L. Stening, Mr. F. N. Chenhall, Sir Herbert Schlink (Chairman).

Briedis, Antonina, registered in accordance with the provisions of Section 17 (1) (c) of the *Medical Practitioners Act, 1938-1955*, 269 Bridge Road, Forest Lodge, New South Wales.

Fraser, Ann Dale, M.B., B.S., 1954 (Univ. Sydney). Rachel Forster Hospital for Women and Children, Pitt Street, Redfern, New South Wales.

The undermentioned have been elected as members of the New South Wales Branch of the British Medical Association: Carroll, Peter John, M.B., B.S., 1955 (Univ. Sydney); Davis, Thomas Parker, M.B., B.S., 1955 (Univ. Sydney); Kidby, Patricia Ann, M.B., B.S., 1955 (Univ. Sydney); Simpson, Elsie Isabell, M.B., B.S., 1955 (Univ. Sydney); Spencer, Gertrude, M.B., B.S., 1955 (Univ. Sydney); Stein, Brian William, M.B., B.S., 1955 (Univ. Sydney); Toh, Charles Chai Soon, M.B., B.S., 1955 (Univ. Sydney); Booth, Joan Cooper, M.B., B.S., 1954 (Univ. Sydney); Ewing, Donald Peter, M.B., 1954 (Univ. Sydney); Houston, Henry Thomas, M.B., B.S., 1954 (Univ. Sydney).

### Corrigendum.

In the issue of June 18, 1955, at page 920, was published an article entitled "The Pathology of Goitre in Tasmania" by Angus E. Stuart. In the second column on page 921, the second sentence in the second paragraph under the cross-heading "The Relationship of Goitre to Iodine Deficiency", which begins with the words "I believe that" and ends with the words "closer examination", should read as follows: "It would seem that the goitrogenic factor in Tasmania is not merely a deficiency of iodine, and suspicion therefore turns to the other mechanisms that prevent the absorption and utilization of this substance."

### Public Health.

#### FOOD AND DRUGS ACT, 1908-1954, OF SOUTH AUSTRALIA.

The following proclamation has been published in *The South Australian Government Gazette*, Number 23, of June 2, 1955.

By virtue of the provisions of the Food and Drugs Act, 1908-1954, I, the said Lieutenant-Governor, with the advice and consent of the Executive Council, do hereby declare that the following articles shall be poisons within the meaning of the said Act:

1. Di-isopropyl fluorophosphonate.
2. Dinitroresols (DNC); their compounds with a metal or a base.
3. Gallamine; its salts; its quaternary compounds.
4. Mustine; its salts.
5. Paramethadione.
6. Phenylbutazone; its salts.
7. Phosphorus compounds, the following: Diethyl thiophosphate of ethyl-mercapto-ethanol, dimefox, ethyl-paranitro-phenyl-benzene thiophosphonate, hexaethyl tetraphosphate (HETP), 4-methyl-hydroxy-coumarin-diethyl thiophosphate, mipafox, paranitro-phenyl-diethyl thiophosphate, parathion, schradan, tetraethyl pyrophosphate (TEPP), triphosphoric pentadimethylamide.
8. Polymethylenebis(trimethylammonium salts).
9. Troxidone.

Given under my hand and the public seal of South Australia, at Adelaide, this 2nd day of June, 1955.

By command,

D.P.H., 2253/1954. A. LYEAL McEWIN, Chief Secretary.

### Nominations and Elections.

The undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

### Deaths.

The following death has been announced:

HUGGART.—William Charles Huggart, on June 24, 1955, at Sydney.

### Diary for the Month.

- JULY 12.—New South Wales Branch, B.M.A.: Organization and Science Committee.  
JULY 12.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
JULY 18.—Victorian Branch, B.M.A.: Finance Subcommittee.

### Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

*New South Wales Branch* (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

*Queensland Branch* (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

*South Australian Branch* (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

*Western Australian Branch* (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all contract practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

### Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

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